TECHNOLOGY DEPT:

July 9, 1941

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DETROIT

# NATIONAL PETROLEUM NEWS

## Commercial Aviation Gasoline Standards Approved by ASTM

Specifications for 3 grades of aviation gasoline, 73, 91 and 100 octane rating, were adopted as tentative standard, in place of 5 grades as proposed in 1939. They are stated to be for use in formulating specifications for purchases of aviation gasoline under contract. Methods of test also given .....R-211

## Performance Specifications for Grease

Special test equipment and methods of testing have been developed at the U. S. Naval Engineering Experiment Station, which permit the purchase of superior greases, with reduction in costs of lubrication, despite increases in unit cost. Plasticity, leakage, bleeding and resistance to oxidation are measured under accelerated or simulated service conditions .....R-218

## Cathodic Method of Controlling Corrosion in Open Tank Condensers

Four plant installations are described, which provide a means to set up artificial current to overcome the tendency of tubes to corrode through electrolysis. The theory of cathodic protection is given.....R-222

# REFINING TECHNOLOGY EDITION

# ERIE's NEW PRODUCT

The Model 277 Erie Tandem Pump illustrated above is in reality two single model 77 computing pumps, attached together with pressed steel panels. Pumps are shipped and handled as single pumps making an easier installation. Connecting panels are attached at the time the individual pumps are installed making your Erie Tandem Pump.

This arrangement makes it possible to separate the pumps at any time you desire and use them as single pumps. When ordering specify brand name, the color of paint for each pump, and the color of paint for the connecting steel panels.

Also available with non-computing registers known as Model 299.

**ERIE**
**METER SYSTEMS**
INC
ERIE PENNA.

DIVISION OFFICES: NEW YORK, CHICAGO, DETROIT, CLEVELAND, NEW ORLEANS, TULSA, BOSTON, ATLANTA, RICHMOND, VA., KANSAS CITY, HOUSTON, DENVER, OAKLAND, CALIF.

## COMING MEETINGS

**JULY**

**North Carolina Independent Oil Jobbers Assn.,** Summer Convention, Mayview Manor, Blowing Rock, N. C., Fri.-Sat., July 25-26.

**AUGUST**

**National Assn. of Petroleum Retailers,** 9th Annual Convention, LaSalle Hotel, Chicago, Ill., Tues.-Thurs., Aug. 19-21.

**SEPTEMBER**

**American Chemical Society,** Atlantic City, N. J., Mon.-Fri., Sept. 8-12.

**Oil Trades Assn. of New York,** Sports Day, Pelham Country Club, Pelham Manor, Pelham Manor, N. Y., Tues., Sept. 9.

**National Petroleum Assn.,** Hotel Traymore, Atlantic City, N. J., Wed.-Fri., Sept. 17-19.

**Society of Automotive Engineers,** National Tractor Meeting, Schroeder Hotel, Milwaukee, Wis., Thurs.-Fri., Sept. 25-26.

**New Jersey Oil Trade Assn.,** Fall Golf Outing and Dinner, Suburban Golf Club, Union, N. J., Fri., Sept. 26.

**National Lubricating Grease Institute,** 9th Annual Meeting, Stevens Hotel, Chicago, Ill., Mon.-Tues., Sept. 29-30.

**OCTOBER**

**West Virginia Oil & Natural Gas Assn.,** Annual Convention, Clarksburg, W. Va., Wed.-Thurs., Oct. 2-3.

**Twenty-Eighth National Foreign Trade Convention,** Hotel Pennsylvania, New York, Mon.-Wed., Oct. 6-8.

**National Safety Congress,** Stevens Hotel, Chicago, Ill., Mon.-Thurs., Oct. 6-9.

**Texas Mid-Continent Oil & Gas Assn.,** Beaumont, Tex., Tues.-Thurs., Oct. 9-11.

**American Institute of Mining & Metallurgical Engineers,** Petroleum Division, Dallas, Tex., Thurs.-Sat., Oct. 16-18; Los Angeles, Calif., Thurs.-Fri., Oct. 30-31.

**Independent Petroleum Assn. of America,** 12th annual meeting, Tulsa, Okla., Mon.-Wed., Oct. 20-22.

**Oil Trades Association of New York,** Annual Banquet, Waldorf-Astoria Hotel, New York, Tues., Oct. 28.

**Society of Automotive Engineers,** National Aircraft Production Meeting, Baltimore Hotel, Los Angeles, Calif., Thurs.-Sat., Oct. 30-Nov. 1.

**California Natural Gasoline Assn.,** Los Angeles, Calif., Fri., Oct. 31.

**NOVEMBER**

**American Institute of Chemical Engineers,** 34th annual meeting, Cavalier Hotel, Virginia Beach, Va., Mon.-Wed., Nov. 3-5.

**American Petroleum Institute,** 22nd Annual Meeting, San Francisco, Calif., Mon.-Fri., Nov. 3-7.

**American Assn. of Petroleum Geologists,** Los Angeles, Calif., Thurs.-Fri., Nov. 6-7.

**DECEMBER**

**New Mexico Oil & Gas Assn.,** Artesia, New Mex., Wed., Dec. 3.

**Oklahoma Stripper Well Assn.,** Tulsa, Okla., Fri. Dec. 5.

**FEBRUARY, 1942**

**Texas Oil & Gas Assn.,** Wichita Falls, Tex., Sat., Feb. 28.

**APRIL**

**National Petroleum Assn.,** 39th Semi-Annual Meeting, Hotel Cleveland, Cleveland, O., April 16-17.

**MAY**

**International Petroleum Exposition,** Tulsa, Okla., Sat.-Sat., May 16-23.

# NATIONAL PETROLEUM NEWS

**JULY 9, 1941**

**NEWS**


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## THIS WEEK WITH NPN

**LATIN AMERICA**

NPN wants to do its part in cementing Pan-American friendship and has responded gladly to a request from the Universidad Nacional of Mexico for copies of NPN. The request said: "I am sure that your articles would be of immense value to all our graduating engineers. In short, I think that your excellent magazine should be in every library of every university in Latin America so that this international friendship of which we talk so much will be inculcated in the minds of every young man. And, as a result, a better understanding among these nations will be a fact."

**BARTER SYSTEM**

One of NPN's writers reports that he is gathering marketing data on "general country town bulk plant operations." He states that his data includes many interesting facts on how some country marketers are using the barter system in their merchandising. Trading gasoline and oil for cows, pigs, eggs and other produce keeps these marketers on their toes. All in all, he concludes, country marketers have to have a David Harum touch in their dealings with their farmer customers.

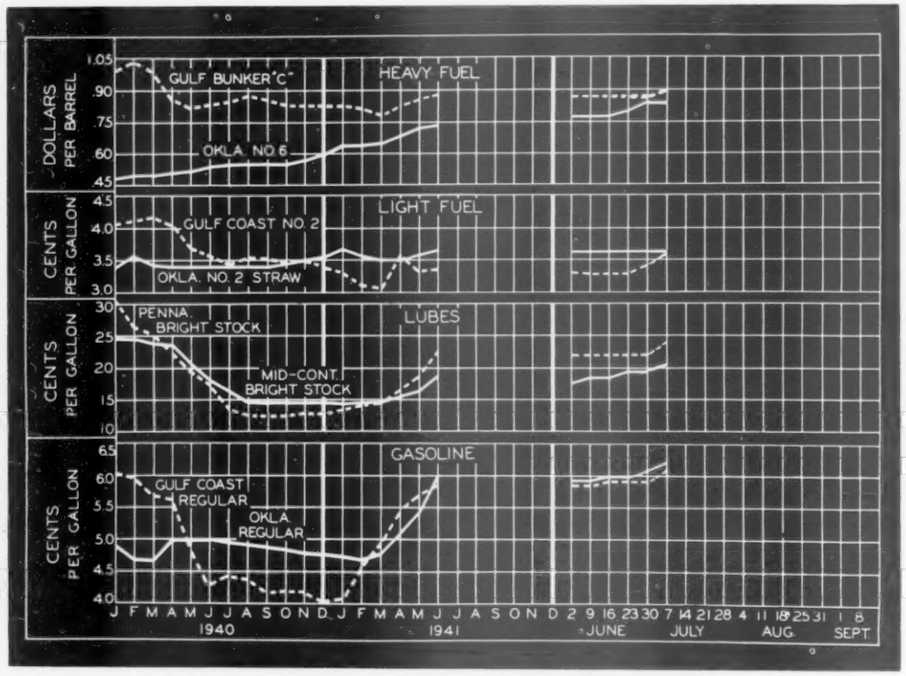
**BUILDING PROFITS**

Three companies in this issue's advertising pages show Oil Marketers how to prepare to profit from coming events. Methods of cutting costs are featured in the messages of 8 other companies. Three offer to help build sales and profits for Oil Marketers. Four others tell how their products meet specific needs of Oil Marketers in bulk plants and service stations.

# •STATISTICS•

## REFINERY PRICES

*Monthly prices in graphs are averages of daily high and low prices shown in Platt's Oilgram Weekly prices are averages of high and low prices shown in Monday Oilgram, and in NPN*


DOLLARS PER BARREL
GULF BUNKER "C"
HEAVY FUEL
OKLA. NO. 6
CENTS PER GALLON
GULF COAST NO. 2
LIGHT FUEL
OKLA. NO. 2 STRAW
PENNA. BRIGHT STOCK
LUBES
MID-CONT. BRIGHT STOCK
GASOLINE
GULF COAST REGULAR
OKLA. REGULAR
J F M A M J J A S O N D J F M A M J J A S O N D 2 9 16 23 30 7 14 21 28 4 11 18 25 31 1 8
1940
1941
JUNE
JULY
AUG.
SEPT

## Petroleum Supply and Demand, Comparative Analyses, April, 1941

(U. S. Bureau of Mines figures, thousands of barrels)

| | —April 1941— Total | Daily av. | March 1941[1] | April 1940 | January-April 1941 | January-April 1940 |
|---|---|---|---|---|---|---|
| **CRUDE RUNS TO STILLS:** | | | | | | |
| Domestic | 107,187 | 3,573 | 107,220 | 103,845 | 419,001 | 414,855 |
| Foreign | 3,919 | 131 | 3,839 | 3,134 | 14,292 | 10,499 |
| Total | 111,106 | 3,704 | 111,059 | 106,979 | 433,293 | 425,354 |
| **MOTOR FUEL:** | | | | | | |
| Production | 53,768 | 1,792 | 53,409 | 50,625 | 208,093 | 199,694 |
| Imports: For domestic use | ... | ... | ... | ... | ... | 45 |
| In bond | 657 | 22 | 238 | ... | 1,347 | ... |
| Exports | [2]2,288 | 76 | 2,044 | 2,075 | 7,742 | 8,517 |
| Stocks: Finished gasoline | 88,576 | ... | 91,717 | 96,615 | 88,576 | 96,615 |
| Natural gasoline | 5,504 | ... | 5,331 | 6,112 | 5,504 | 6,112 |
| Domestic demand | 55,105 | 1,837 | 48,563 | 47,683 | 191,265 | 170,217 |
| **AVIATION GASOLINE:** | | | | | | |
| Production | 1,633 | 54 | 1,448 | 1,441 | 5,885 | 4,762 |
| Transfers to regular gasoline | 287 | 10 | 200 | ... | 1,132 | ... |
| Exports | [3]63 | 2 | 497 | 410 | 1,355 | 1,203 |
| Stocks | 7,347 | ... | 6,876 | 5,178 | 7,347 | 5,178 |
| Domestic demand | 812 | 27 | 547 | 671 | 2,405 | 2,029 |
| **KEROSENE:** | | | | | | |
| Production | 6,068 | 202 | 6,033 | 6,257 | 24,650 | 24,147 |
| Exports | 180 | 6 | 165 | 399 | 519 | 1,573 |
| Stocks | 7,063 | ... | 6,724 | 4,351 | 7,063 | 4,351 |
| Domestic demand | 5,549 | 185 | 6,821 | 5,621 | 26,623 | 25,799 |
| **DISTILLATE FUEL OIL:** | | | | | | |
| Production | 14,692 | 490 | 15,387 | 15,260 | 61,829 | 64,416 |
| Transfers in Calif. | 1 | ... | 44 | 36 | 101 | 105 |
| Transfers east of Calif. | 172 | 6 | 182 | 199 | 702 | 815 |
| Imports: For domestic use | 188 | 6 | 256 | 266 | 1,221 | 1,109 |
| In bond | 321 | 11 | 55 | 60 | 484 | 117 |
| Exports | [3]956 | 32 | 1,037 | 1,966 | 4,379 | 7,067 |
| Stocks: Refinery | 24,449 | ... | 23,293 | 20,310 | 24,449 | 20,310 |
| Bulk terminal | 7,344 | ... | 6,716 | 4,782 | 7,344 | 4,782 |
| Domestic demand | [4]12,634 | 421 | 19,753 | 11,849 | 71,105 | 68,121 |
| **RESIDUAL FUEL OIL:** | | | | | | |
| Production | 27,310 | 910 | 27,858 | 25,372 | 109,105 | 105,004 |
| Transfers in Calif. | 193 | 6 | 366 | 337 | 1,614 | 1,397 |
| Transfers east of Calif. | 327 | 11 | 294 | 361 | 1,197 | 1,300 |
| Imports: For domestic use | 1,539 | 51 | 3,243 | 1,073 | 8,374 | 6,284 |
| In bond | 941 | 31 | 1,020 | 857 | 3,788 | 4,700 |
| Exports | 1,378 | 46 | 1,206 | 1,532 | 4,561 | 4,372 |
| Stocks: Refinery | 75,276 | ... | 77,971 | 83,825 | 75,276 | 83,825 |
| Bulk terminal | 5,103 | ... | 4,928 | 5,107 | 5,103 | 5,107 |
| Domestic demand | [5]31,452 | 105 | 32,735 | 26,887 | 128,442 | 117,671 |

[1]Revised. [2]Includes 11,000 barrels benzol and 760,000 barrels exported from bond. [3]Includes 5,000 barrels anti-knock compounds. [4]Includes 43,000 barrels imports for domestic use. [5]Includes 80,000 barrels exported from bond. [6]Includes 749,000 barrels Diesel bunker oil. [7]Includes 1,871,000 barrels bunker fuel oil.

## NPN Gasoline Index

| | Dealer T. W. Cents per Gallon | Tank Car |
|---|---|---|
| July 7 | 9.93 | 6.69 |
| Month ago | 9.88 | 6.50 |
| Year ago | 8.88 | 5.41 |

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.

## NPN Refinery Index

The Refinery Index shown below represents the return in cents per barrel (42 gallons) from refining a barrel of 36 gravity Mid-Continent crude into its various principal products. The index is calculated by subtracting the current price of crude at the well from the average price of refined products sold at current quoted Oklahoma refinery prices.

| Date | Margin |
|---|---|
| July 1 | 69.0 |
| Month ago | 66.2 |
| Year ago | 53.7 |

## Crude Oil Stocks

(U. S. Bureau of Mines Figures; Thousands of Barrels)

| Grade or origin | June 21 | June 28 | Change from June 21 |
|---|---|---|---|
| Pennsylvania Grade | 4,271 | 4,297 | + 26 |
| Other Appalachian | 1,409 | 1,420 | + 11 |
| Lima-Michigan | 1,033 | 1,020 | — 13 |
| Illinois-Indiana | 20,865 | 20,246 | — 619 |
| Arkansas | 2,911 | 2,748 | — 166 |
| Kansas | 8,785 | 8,755 | — 30 |
| Louisiana | 12,759 | 12,439 | — 320 |
| Northern | 4,296 | 4,424 | + 128 |
| Gulf Coast | 8,463 | 8,015 | — 448 |
| Mississippi | 1,452 | 1,507 | + 55 |
| New Mexico | 7,272 | 7,203 | — 69 |
| Oklahoma | 57,614 | 57,158 | — 456 |
| Texas: | 86,994 | 88,991 | +1,997 |
| East Texas | 22,382 | 22,698 | + 316 |
| West Texas | 15,618 | 16,557 | + 939 |
| Gulf Texas | 24,794 | 25,596 | + 802 |
| Other Texas | 24,200 | 24,140 | — 60 |
| Rocky Mountain | 15,731 | 15,928 | + 197 |
| California | 35,611 | 35,125 | — 486 |
| Foreign | 2,435 | 2,565 | + 130 |
| Total U. S. refinable | 259,142 | 259,399 | + 257 |
| Heavy in California | 10,774 | 10,716 | — 58 |
| East Coast* | 12,370 | 13,078 | + 708 |

*Domestic and foreign crude petroleum (included above by origin) stored in East Coast refinery district.

## Mid-Continent Lube Statistics, May 31, 1941

(Reported by Western Pet. Refiners Ass'n. covering operations of 12 member reporting companies; figures in bbls.)

| | Bright Stock | Viscous Neutrals | Paraffin Oils | Steam Refined Stocks* | Blended Oils |
|---|---|---|---|---|---|
| Production | 239,260 | 248,696 | 82,762 | 5,617* | 272,259 |
| Shipments: | | | | | |
| Domestic | 169,400 | 243,187 | 85,965 | 24,541* | 242,117 |
| Export | 71,550 | 23,255 | ... | 618* | 13,360 |
| TOTAL | 240,950 | 266,442 | 85,965 | 25,159* | 255,477 |
| Inventory May 31, 1941 | 329,283 | 257,586 | 62,879 | 73,754* | 199,587 |
| Inventory April 30, 1941 | 330,973 | 275,332 | 66,082 | 93,296* | 182,805 |
| Inventory May 31, 1940 | 374,022 | 297,862 | 54,724 | 87,156* | 116,054 |

*New basis of reporting began January 1940.

## Mid-Continent Refined Oil Statistics

(Compiled by Western Petroleum Refiners Ass'n. Inventories are as of end of month. Figures in barrels.)

| | MAY (a) Production | Shipments | Inventory | April, 1941 Inventory (a) | May, 1940 Inventory (b) |
|---|---|---|---|---|---|
| Gasoline | 7,126,319 | 7,733,730 | 5,652,050 | 6,259,461 | 6,537,421 |
| Kerosine (41-43) | 383,093 | 326,627 | 354,889 | 298,423 | 165,611 |
| Kerosine (42-44) | 159,348 | 121,482 | 144,874 | 107,008 | 189,887 |
| Tractor fuel (c) | 220,180 | 213,528 | 125,233 | 118,581 | 107,955 |
| Tractor fuel (d) | 164,029 | 169,824 | 36,444 | 42,239 | 84,935 |
| No. 1 white | 148,493 | 77,006 | 348,692 | 277,205 | 185,511 |
| No. 1 straw (38-40) | 44,271 | 41,542 | 95,407 | 92,678 | 55,122 |
| No. 2 straw (32-36) | 196,090 | 83,336 | 453,063 | 340,309 | 337,185 |
| No. 2 dark (32-36) | 86,827 | 95,428 | 139,328 | 103,990 | 174,122 |
| U. G. I. | 23,314 | 16,732 | 55,807 | 49,225 | 36,774 |
| 28-30 zero fuel | 33,775 | 31,164 | 62,592 | 103,920 | 38,707 |
| 24-28 fuel | 75,302 | 72,272 | 34,802 | 31,772 | 51,001 |
| 18-22 fuel | 9,223 | 2,311 | 949,138 | 999,064 | 533,191 |
| 14-16 fuel | 26,894 | 23,917 | 9,976 | 6,999 | 39,435 |
| 14 & below | 1,499,949 | 1,444,935 | 925,666 | 832,260 | 601,496 |

(a) Inventories of 38 companies operating 46 plants. (b) Inventories of 39 companies operating 47 plants. (c) Non-taxable. (d) Taxable.

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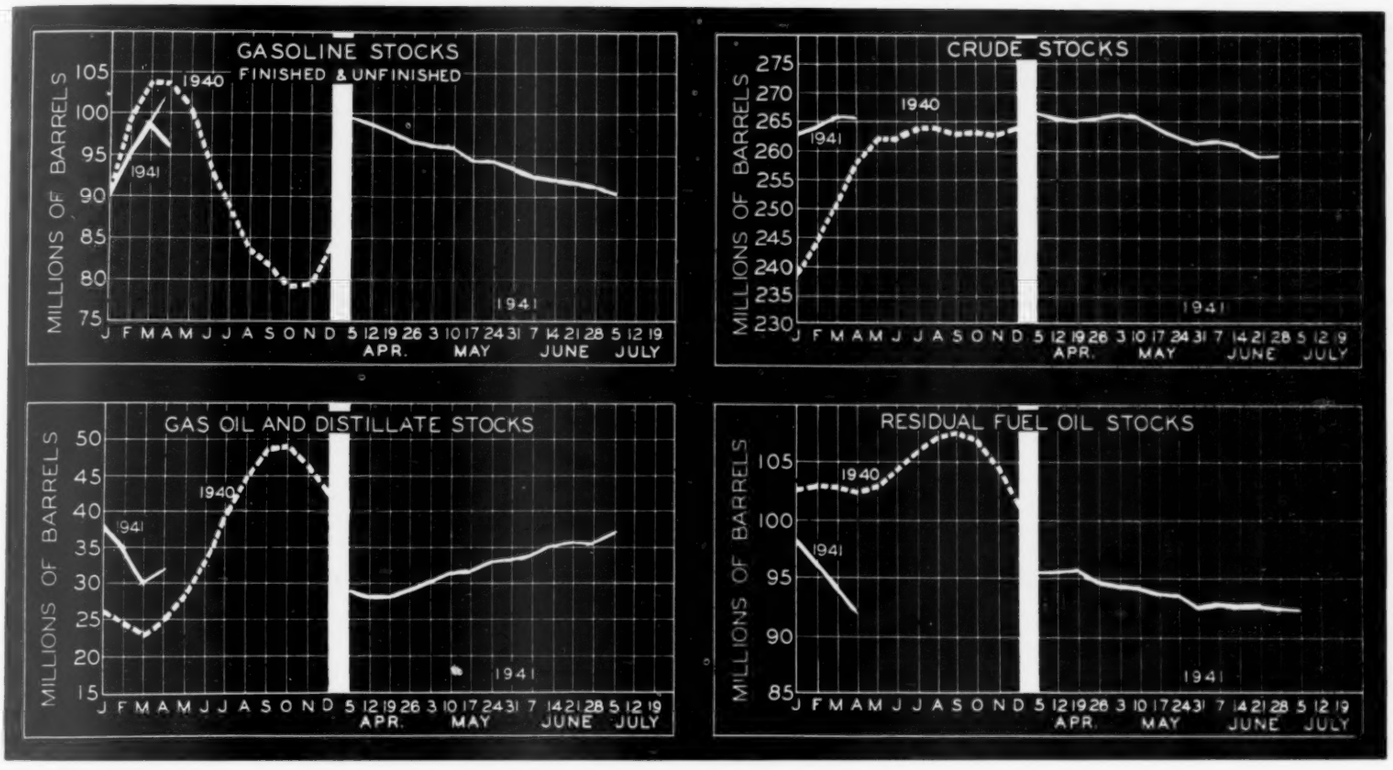
# •STATISTICS•


GASOLINE STOCKS
FINISHED & UNFINISHED
MILLIONS OF BARRELS
1940
1941
CRUDE STOCKS
GAS OIL AND DISTILLATE STOCKS
RESIDUAL FUEL OIL STOCKS
J F M A M J J A S O N D 5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19
APR. MAY JUNE JULY

## A.P.I. Report of Refinery Operations

*(Figures in Thousands of Barrels of 42 Gallons Each)*

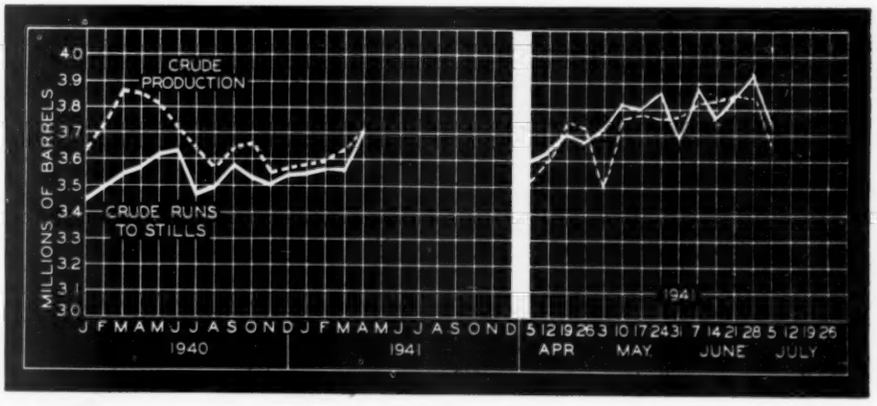
| Districts | Daily Average Crude Runs to Stills, Week Ended | | Per Cent of Reporting Capacity Operated, Week Ended | | Gasoline Production at Refineries incl. Natural Blended, Week Ended | | Total Stocks Finished & Unfinished Gasoline, Week Ended | | Total Stocks Gas Oil & Distillates, Week Ended | | Total Stocks Residual Fuel Oil, Week Ended | | Stocks Aviation Gasoline Included in Finished & Unfinished Gasoline Total, Week Ended | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | July 5 | June 28 | July 5 | June 28 | July 5 | June 28 | July 5 | June 28 | July 5 | June 28 | July 5 | June 28 | July 5 | June 28 |
| East Coast | 603 | 600 | 89.6 | 93.3 | 1,672 | 1,645 | 21,698 | 22,888 | 10,035 | 9,421 | 7,911 | 8,240 | **East Coast** | |
| Appalachian | 132 | 141 | 95.0 | 99.3 | 446 | 511 | 3,033 | 2,993 | 367 | 418 | 501 | 470 | 813 | 809 |
| Ind., Ill., Ky. | 625 | 653 | 98.4 | 97.5 | 2,482 | 2,524 | 16,728 | 16,913 | 3,725 | 3,312 | 3,597 | 3,578 | | |
| Okla., Kans., Mo. | 306 | 307 | 91.9 | 95.0 | 1,155 | 1,177 | 7,193 | 7,475 | 1,426 | 1,436 | 2,034 | 2,044 | **Interior** | |
| Inland Texas | 132 | 134 | 79.5 | 80.3 | 614 | 623 | 2,217 | 2,197 | 381 | 384 | 1,345 | 1,324 | 1,054 | 1,053 |
| Texas Gulf | 837 | 905 | 83.8 | 94.8 | 2,677 | 2,976 | 12,693 | 12,019 | 7,322 | 7,361 | 7,854 | 7,589 | **Gulf Coast** | |
| La. Gulf | 148 | 149 | 106.7 | 93.1 | 331 | 346 | 3,136 | 3,174 | 1,435 | 1,330 | 1,221 | 1,356 | 3,576 | 3,605 |
| N. La., Ark. | 59 | 58 | 125.5 | 111.5 | 165 | 156 | 476 | 471 | 286 | 297 | 470 | 491 | | |
| Rocky Mt. | 58 | 53 | 85.3 | 77.9 | 189 | 216 | 1,435 | 1,560 | 124 | 137 | 508 | 527 | **California** | |
| California | 511 | 591 | 71.5 | 81.0 | 1,382 | 1,578 | 15,205 | 15,421 | 11,049 | 10,896 | 65,679 | 65,757 | 1,744 | 1,609 |
| Reported | 3,411 | 3,591 | 87.1 | 91.8 | 11,113 | 11,752 | 83,814 | 85,111 | 36,150 | 34,992 | 91,120 | 91,376 | 7,187 | 7,076 |
| Estimated Unreported | 334 | 339 | | | 1,445 | 1,500 | 6,250 | 6,350 | 775 | 740 | 1,515 | 1,520 | 345 | 335 |
| U. S. Total* | 3,745 | 3,930 | | | 12,558 | 13,252 | 90,064 | 91,461 | 36,925 | 35,732 | 92,635 | 92,896 | 7,532 | 7,411 |
| U. S. Total 7-5-40* | 3,535 | | | | 11,334 | | 92,988 | | 34,337 | | 104,708 | | 5,293 | |

*Estimated, U. S. Bureau of Mines basis.

## U. S. Crude Oil Production

(American Petroleum Institute figures)

| | Week Ended July 5, Barrels (Daily Average) | Week Ended June 28, Barrels (Daily Average) |
|---|---|---|
| Oklahoma | 433,050 | 420,850 |
| Kansas | 241,150 | 237,300 |
| Nebraska | 4,850 | 4,750 |
| Texas | 1,220,700 | 1,428,250 |
| Louisiana | 315,000 | 325,700 |
| Arkansas | 72,550 | 72,700 |
| Mississippi | 33,850 | 28,500 |
| Illinois | 340,350 | 339,100 |
| Indiana | 21,250 | 21,300 |
| Eastern (Ill. & Ind. excl.) | 90,450 | 92,500 |
| Michigan | 39,800 | 37,800 |
| Wyoming | 86,750 | 77,700 |
| Montana | 19,500 | 19,250 |
| Colorado | 4,000 | 3,950 |
| New Mexico | 111,350 | 111,400 |
| California | 623,600 | 626,200 |
| Total U. S. | 3,658,200 | 3,847,250 |
| Crude Imports | 156,860 | 182,285 |
| Total new supply | 3,815,060 | 4,029,535 |


CRUDE PRODUCTION
CRUDE RUNS TO STILLS
MILLIONS OF BARRELS
1940
1941
J F M A M J J A S O N D J F M A M J J A S O N D 5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26
APR MAY JUNE JULY

# 1941 Head of North Carolina Independent Oil Jobbers

★

C. B. MYERS

★

WHEN the North Carolina Independent Oil Jobbers Assn. meets at Blowing Rock, N. C., July 25-26, C. B. Myers, Statesville, N. C., owner of Myers Oil Co. and 1941 president of the association, will preside.

Born on a farm near Statesville in 1898, Mr. Myers attended Mars Hill College, Mars Hill, N. C., and joined Gulf Refining Co. as a commission agent in 1922. He became an independent jobber for the American Oil Co. in 1934, and opened another bulk plant in June, 1938, at Mt. Airy N. C., under the name of Myers Oil Co., Inc.

"Favorite sport is hunting, particularly for quail," Mr. Myers says, adding that he enjoys a good game of tennis at the Statesville Country Club. He belongs to the Statesville Masonic Lodge, Statesville Shrine Club, Statesville Chamber of Commerce, and the Oasis Temple at Charlotte, N. C.

Mr. Myers says about his association: "We have in mind to keep a strong organization and to improve our position through legislation—and in working together in every other way possible."

# NATIONAL PETROLEUM NEWS

VOLUME 33 WEDNESDAY, JULY 9, 1941 NUMBER 28


## Jobbers' Price Hike Attack Hit by Refiners, Producers

NPN News Bureau

TULSA, July 8.—Southwestern refiners today scored charges by the Missouri Independent Oil Jobbers Assn. to Price Administrator Leon Henderson that recent advances in tank car gasoline prices in the Mid-West were "absolutely uncalled for".

The M.I.O.J.A., in a wire to the price chief, had stated that constant increases in tank car prices will put 10,000 independent jobbers out of business. Refiners in the Southwest answered the charge with statements to the effect that recent advances are justifiable readjustments to cover increased cost of raw materials and higher manufacturing costs.

### Cite Higher Costs

Missouri jobbers are losing sight of the fact that for several months both producers and refiners of crude in the Southwest have been absorbing increased costs of production and manufacturing, refiners asserted. "They forget that for almost 2 years the price of crude remained unchanged, while the cost of bringing that oil to the surface was mounting daily," a producer said.

Likewise, southwestern refiners have continued to absorb increased manufacturing costs to the point where it was necessary to pass the increases on to the consumer, refiners reported.

### 'Buyers' Market' Gone

"Some of these jobbers have been so used to a 'buyers' market' that now that the situation has been reversed by unprecedented increases in demand, they can't get accustomed to a 'sellers' market'," was the reaction of one refiner. Another said he believed the Office of Price Administration and Civilian Supply should not expect any one division within the industry to absorb increased costs.

"If the jobbers' buying prices have been increased due to increased costs of producing and manufacturing crude, certainly these Missouri jobbers couldn't be criticized by anyone for passing those increases on to the consuming public," he said, pointing to numerous so-called "subnormal" retail prices scattered throughout the South and

(*Continued on page* 16)

## Stock Figures Shoot Holes In 'Dwindling Supply' Talk

NPN News Bureau

CLEVELAND, July 8—Despite talk of "dwindling stocks" and predicted "shortage" of petroleum products on the East Coast, the oil companies there appear to be in pretty good shape to meet the "emergency", a study of refinery operations and stocks for that area as reported by the American Petroleum Institute shows.

East Coast operations and stocks are shown in Table 1. It will be noted that stocks of finished and unfinished gasoline jumped 2,101,000 bbls., from 20,787,000 bbls. on May 3 to 22,888,000 bbls. on June 28, 1941, and the June 28 figure was only 155,000 bbls. under the stocks reported by the Institute of 23,043,000 bbls. for the nearest comparable date in 1940. In the May-June, 1940, period, stocks dropped 572,000 bbls. from 23,615,000 bbls. to 23,043,000 bbls.

On gas oil and distillate fuel stocks, the Institute's reports show an increase of 1,417,000 bbls. from 8,004,000 on May 3 to 9,421,000 bbls. on June 28, 1941. At this level, stocks were less than a million bbls. under the inventories of 10,401,000 bbls. on the nearest comparable 1940 date.

In the May-June, 1941, period, stocks of residual fuels on the East Coast declined less than a half million bbls. from 8,717,000 bbls. to 8,240,000 bbls. and on June 28, 1941, were 600,000 bbls. under stocks on the comparable 1940 date.

A similar tabulation of the Institute's report of Appalachian district refinery operations and stocks is shown in Table 2. This district, which includes the eastern half of Ohio, is at the East Coast's back door. In the May-June period this year, Appalachian stocks of gasoline declined only

(*Continued on page* 14)

## Press-time Bulletins

### TRAINLOAD SHIPMENTS

**CHICAGO—Trainload shipments of petroleum products would save more than the 7-day unloading schedule and all other measures combined for obtaining greater use of tank car facilities, according to Joseph Prince, traffic manager of Midland Co-operative and long an advocate of trainload rates.**

**On a trainload shipment from Group 3 to Minneapolis, for example, there would be a saving of from 8 to 36 hours in assembling tank cars, plus a similar saving at the delivery end. Also, the trainload movement would take only 2 or 3 days as against 5 or 6 days for tank cars moving in mixed freight, Mr. Prince said.**

* * *

### FUEL CONSERVATION

**NEW YORK—Emergency defense committee and full membership of the New York Oil Heating Assn. meets tonight to draft questionnaire for circulation to home owners as a part of the association's fuel oil conservation program in metropolitan New York area. Questionnaire will be distributed door-to-door, to all householders using oil burners, association states.**

* * *

### CANADA TO POSTPONE GASOLINE RATIONING

**OTTAWA—In order that no barriers be placed in way of tourist traffic, Canadian government plans for formal rationing gasoline have been postponed indefinitely, office of Oil Controller said here today. It is felt that measures curtailing**

(*Continued on page* 9)

### April 'Gas' Consumption Up 14.58%, API Reports

NPN News Bureau

NEW YORK, July 5.—Consumption of gasoline in the U. S. during April was reported this week by American Petroleum Institute as being 14.58% over April, 1940, totaling 2,219,534,000 gals.

Gains were registered in all states except South Dakota and Tennessee. Largest increases were in West Virginia, 29.64%; Maine, 25.32%; Virginia, 24.75%; Maryland, 24.43% and New Hampshire, 23.48%. For further details, see Statistics pages.

## Group Seeks Maximum Use Of Tank Cars

NPN News Bureau

CHICAGO, July 7.—A voluntary, co-operative move to obtain maximum utilization of present tank car facilities was launched here today with appointment of a 15-man committee of representatives of tank car leasing companies, and tank car owners and lessees in the petroleum and other industries shipping liquids by rail.

Committee will function under Defense Transportation Commissioner Budd. A full-time, paid executive secretary (who will probably carry the title of Director of Tank Car Service) will be named. He will also serve as tank car consultant to Commissioner Budd.

Committee's activities will be entirely voluntary, there will be no compulsion. Objective is greater use of tank cars now available. No effort will be made to say who shall ship by tank car or what routes shall be followed. Before any joint action is taken, "clearance" will be obtained from the Department of Justice so that there is no prospect of future anti-trust law liability, said Mr. Budd.

### 'No Conflict With Ickes'

There will be no conflict of jurisdiction between this group and the regional transportation committees being set up by Oil Co-ordinator Ickes, he said.

Mr. Budd sees no need for building new tank cars. That steel, he added could be put to better purpose in building new tankers as the rails are being called upon to fill a temporary transportation shortage due to diversion of U. S. coastwise tankers to British service.

Both the defense commissioner and others at the meeting reiterated that results of maximum utilization of existing tank cars would be surprising. Various instances of time lost in "wasteful" handling of tank cars, mostly on the unloading end, were cited.

### Dow Presides at Meeting

Fayette B. Dow, Washington, who is pipeline consultant to Commissioner Budd, called the meeting at Mr. Budd's request. He presided after the defense

official had made his opening statement.

Mr. Dow read a legal opinion from Office of Emergency Management (overall defense co-ordinating agency at Washington) on matter of applying priorities to tank car shipments. Government has power, either under Interstate Commerce Commission legislation or new priorities law, to grant preferences in tank car shipments, opinion said.

However, no need for setting priorities was seen by those attending meeting here.

There were approximately 100 present. Probably half were representatives of non-petroleum users of tank cars. Balance was divided between tank car leasing companies, and owner-shippers and lessee-shippers—major companies and independent refiners. No independent marketer attended, so far as could be learned.

Mr. Dow emphasized that the meeting was "on its own" to develop any program it saw fit. After some discussion of sources of tank cars outside of those now used by oil companies, it was decided to name a committee to draft an organization plan. Committee worked straight through the 2-hour lunch period—without stopping to eat.

**Enlarged to 15 Members**

Recommendation was for a voluntary organization of tank car owners having 25 or more cars, with a 9-man executive committee composed of 4 non-petroleum users, a railroad representative, 2 oil company and 2 tank car company representatives. This brought objection that the oil industry deserved greater representation, especially as there was no provision for shipper-lessees (oil companies which do not own tank cars). It was agreed to enlarge the committee to 15, with shipper-lessees given 2 places and greater representation for tank car companies and owner-shippers.

**Members Picked**

Those attending the meeting then divided into groups and picked their nominees for places on the 15-man committee—nominations were unanimously approved. Committee members, and group they represent, follows:

TANK CAR LEASING COMPANIES—B. C. Graves, Union Tank Car Line; Lee Robley, North American Car Corp.; Robert Rogers, Shippers Car Line; and Horace E. Coyle, General American Transportation Corp.

PETROLEUM TANK CAR OWNER-SHIPPERS—J. S. Wood, Pan American Petroleum & Transport Co.; J. B. Riordan, Union Oil Co. of California; C. R. Musgrave, Phillips Petroleum Co.; and P. G. Anderson, Lion Oil & Refining Co.

PETROLEUM LESSEE-SHIPPERS—Lee Cowles, Standard of Indiana; and R. J. Walsh, The Texas Co.

RAILROADS—J. J. Mahoney, Sante Fe.

NON-PETROLEUM OWNER-SHIPPERS — Chemical industries, H. M. Mavey, Matheson Alkali; Edible and Non-edible Oils, Chase Burwell, of A. E. Staley & Co.; Molasses, R. R. Luddecke, Fleishmann Transportation Co.; and Alcohol, H. E. Seel, Commercial Solvents Corp.

**Fact-Finding Comes First**

First work of the committee's tank car service director will be digging up facts on the situation. By the time he is ready to report to the committee for co-operative action, the whole project will have been "cleared" with the justice department's anti-trust division, Mr. Budd said.

Mr. Dow said that steps had already been taken looking to obtain the justice department's approval. Matter has been taken up with Deputy Oil Co-ordinator Davies, he added.

"Spade work" among the tank car users present indicated pools of tank cars outside of those now used by oil companies. Discussion brought out that some non-petroleum users —such as soy bean oil—expect they will need more cars. "But there is likelihood that some of these non-petroleum cars can be released for hauling petroleum products during slack seasons of these other tank car using industries."

Also the Army's requirement of tank cars is doubling and redoubling, on contracts where there are only occasional shipments, Army requires shipper to furnish cars now. Army is building storage but cannot keep pace with requirements.

Chemical industries have between 10,000 and 12,000 tank cars but most of these are special equipment, it was brought out. Only about 3000 or 4000 are suitable for hauling oil.

Railroads own about 9000 tank cars. Sante Fe, owning 4000 of the total, was cited as typical. But of these, the Sante Fe has only about 500 in commercial use, others being used to haul water, fuel oil and, he indicated, some used for storage. Tanks are now being erected so that more cars can be put into commercial service, he added.

Government owns about 800 tank cars but with the Army's needs growing only possibility in this direction was more efficient use, it was brought out. Army is planning a large order for 10,000-gal. cars.

# Ickes Sees 'Acute Shortage' On East Coast by September

NPN News Bureau

WASHINGTON, July 5—East Coast oil shortage "may become acute by September," warned Oil Co-ordinator Ickes this week, declaring that due to the transfer of 50 American tankers to British service, rapidly dwindling stocks makes it essential that Atlantic Coast residents immediately adopt conservation practices and make "4 gallons of gasoline do what 5 did before."

Deficit in the shipment of petroleum and products necessary to take care of current East Coast consumption was 150,000 bbls. daily this week, Mr. Ickes reports, predicting that by the end of July this deficit will have reached 250,000 bbls. daily.

Past week, meanwhile, has seen the following developments designed to alleviate the impending East Coast oil shortage:

**Pipeline 'Selected'**

Co-ordinator Ickes stated that any announcement of his decision on the type and route of the proposed pipeline from the Southwest to the Atlantic seaboard would be deferred until the Senate acts on the Cole pipeline bill, now pending before the Senate Interstate Commerce Committee. A "selection", however, has been made, Mr. Ickes told his press conference.

Bureau of Marine Inspection, operating by telephone, began issuing new coastwise tanker load line assignments through the American Bureau of Shipping and Lloyd's following promulgation of new regulations by the Commerce Department under the Bland load-line bill signed by the President on July 3. Co-ordinator Ickes estimated that the new load-lines would increase Gulf-East Coast deliveries from 30,000 to 40,000 bbls. daily.

Standard Oil Co. of New Jersey was reported by Mr. Ickes as having advised Deputy Oil Co-ordinator Davies, in response to a telegram to East Coast companies urging greater use of tank cars, that it would undertake to use "1400 tank cars immediately without passing the price on to the consumer." Conversations are still going on with other companies and "doubtless some or all of these will take the same attitude," Mr. Ickes said.

**Views Rail Rates**

Mr. Ickes stated that he had asked Interstate Commerce Commissioner Eastman about reduced rail rates on petroleum and products to the East Coast for the duration of the emergency, but the Oil Co-ordinator did not amplify this statement.

Mr. Ickes reported that July 7 would see the first shipment in many years of crude oil to the Atlantic seaboard by railroad, when 25 tank cars were scheduled to leave Lima, Ohio, eastern terminus of the Buckeye Pipeline Co., for Standard Oil Co. of New Jersey's Bayonne, N. J., refinery.

**'Educates' Motorists**

The Co-ordinator announced that he would soon ask city and police officials to undertake to educate motorists in gasoline saving practices, stating, however, that he thought that some compulsion might be necessary. He suggested "a few judicious arrests," and would have service stations refuse to sell gasoline unless the car owner produced an inspection card showing his motor was operating so as to require a minimum of fuel as possible means of securing public co-operation.

Navy Secretary Knox agreed to turn back 2 of the Navy's national defense type tankers, of 150,000 bbls. capacity each and capable of 18 knots, for service to the East Coast, Mr. Ickes announced. Maritime Chairman Land has reported that the Maritime Commission is working on the question of repatriating Panamanian flag tankers, Mr. Ickes said.

Cultural Relations Director Rockefeller has urged Mr. Ickes to effect a more equitable distribution of the effect of the diversion of tankers to British shuttle service, declaring that about 75% of the burden was falling on Latin America. Oil Co-ordinator, in reporting Mr. Rockefeller's action, said no steps have yet been taken, but that "we will work out a plan."

* * *

# Tanker Transfers Seen as 'X Factor'

NPN News Bureau

NEW YORK, July 7.—Transfer of additional American-flag tankers to service for British war aid, "now looked upon as a virtual certainty", is labeled by Standard Oil Co. (N. J.) as the "X-factor" in the problem of supplying the East Coast with ample petroleum products during the coming 9 months.

The next issue of Jersey Standard's house organ, "The Lamp", will carry an article which, in summary, states that emergency activities of the oil industry appear "on paper" to be sufficient "to keep oil mov-

(*Continued on page* 16)

# No Shortage of Steel Supply in United States Says Authority; Alarmists Blamed

**Following article on steel supply in the U. S. was written exclusively for NPN by Earl L. Shaner, president of Penton Publishing Co. and editor-in-chief of Steel magazine. Mr. Shaner asserts there is no actual steel shortage and blames governmental alarmists for difficulties encountered on deliveries. He points out both oil and steel industry are alert to changing conditions and can meet any sudden increased demand satisfactorily—EDITOR.**


## By Earl L. Shaner

**Editor-in-Chief of Steel**


CLEVELAND, July 7.—Every individual identified with the petroleum industry is concerned directly or indirectly with the problem of steel supply.

He knows that today it is difficult to obtain reasonable deliveries on steel for certain purposes and wants to know whether this tight condition is going to continue, get worse or improve.

No one can give a satisfactory answer to this question.

Steel producers cannot, for the reason that the responsibility of allocating steel to their customers has been taken out of their hands. Today distribution is governed largely by arbitrary rules administered from Washington.

Those who devise and administer these rules cannot supply the answer for several reasons.

### Government Policy Unknown

First, they do not know what the real policy of the government is in regard to supplies for civilian use. The President has declared that "business as usual" has been abandoned, but many departments and bureaus are carrying on as if "business as usual" were the No. 1 policy of the government. In short, the determination of the extent of supplies for non-defense needs still is in doubt.

Secondly, the administrators of the rules cannot make allowances for various factors—such as shortages of labor, basic materials, etc. and interruptions due to strikes, congestion in transportation, etc.—which may easily upset any schedule or policy they may adopt.

However, while neither steel manufacturers nor OPM or other government agencies can answer the questions of steel consumers, there are facts concerning supply and demand which indicate within reasonable limits what users of steel can expect.

### Steel in Good Shape

The first fact of importance is that the steel industry is in good shape physically, financially and from the standpoint of personnel to perform near miracles in production.

Its plants were in pretty good shape when war broke out in September, 1939. They have been brought to a much higher state of efficiency since that date.

There is no serious problem of finance.

The *esprit de corps* of personnel is high—both as to management and as to employes. The problem of labor shortage is not serious—not nearly as acute as in many other industries.

### Has Ample Capacity

The second fact of importance is that the industry has ample capacity to meet this emergency.

In view of the publicity that has been given to the subject of steelmaking capacity, this point deserves clarification and emphasis.

At the end of 1939, the industry had facilities for turning out 81,614,142 net tons of steel ingots annually. As of Dec. 31, 1940, this capacity had mounted to 84,148,350 net tons. Today it stands somewhere between 85,000,000 and 87,000,000 tons, and it is mounting daily.

Obviously this capacity is far above any demand that has even been put up to the industry. In the peak year of 1929, foreign and domestic consumers were able to use finished steel requiring only 60,829,752 net tons of ingots. In 1937, one of the highest post depression years, total consumption demanded only 55,443,256 net tons. In 1940, an exceedingly good year, the requirements—including a high export demand—took only 66,981,662 tons and pushed the industry to operate at only 82.1% of capacity.

### Needs are Outlined

It is clear, of course, that the present capacity is more than adequate for civilian needs, but the pertinent question now is whether it is sufficient for civilian plus military needs.

Strangely enough there is little argument about the requirements for direct defense and aid to Britain and to other friendly belligerents. Almost every authority concedes that all of these direct defense needs combined will take only 20,900,000 net tons of steel in 1941 and 24,100,000 net tons in 1942.

In other words, military requirements of all kinds represent about one-fourth of the steel industry's capacity.

If, as may be reasonably expected, production in 1941 runs to about 85,000,000 tons and if military needs take 21,000,000 tons, a total of 64,000,000 will be available for civilian requirements.

### Needs are 'Distorted'

This represents a supply for civilian needs which is about 3,000,000 tons less than total output in 1940 and exceeds the domestic consumption of that year (55,300,000 tons) by an ample margin.

Why, therefore, is there so much difficulty in obtaining steel now?

The answer is that domestic civilian demand has been artificially distorted to fantastic proportions. The hue and cry about scarcity impelled every consumer to seek protection in larger inventories.

A second factor is that steel has been going into defense work ahead of actual requirements. Steel for ships has been shipped before the shipyards were ready to lay keels.

When the initial confusion and excitement of trying to tackle a tremendous job on short notice gives way to a more orderly effort, it will be found that the traditional habit of the steel industry to meet peak situations with flying colors will be maintained.

### Record Is Significant

In this connection, the record of the steel industry in the World war is significant.

In 1916, before the United States entered the war, the steel industry turned out 47,906,521 net tons of steel ingots. It operated at 93.4% of capacity.

In 1917, the year of our entry into the war, the industry produced 48,853,504 net tons, but did so by operating at only 90.8% of capacity.

In 1918, the year of our peak war activity, the industry turned out 48,217,145 net tons, but operated at only 84.6% of capacity.

In other words, the steel industry had more capacity than the nation's facilities could utilize.

A similar situation likely will prevail in the present emergency. In due time the initial confusion will subside and the steel industry's steadily mounting capacity, aided by a more effective utilization of steel, will catch up with demand.

### See Lower Capacity Rate

As in the World war, steelmakers probably will operate at a lower rate of capacity in 1942 than in 1941—simply because of the inability of the manufacturing industries to "chew up" as much steel as can be produced.

A third and final fact is that the furore about the inadequacy of steel capacity emanates from the same sources which put out alarmist statements about the inadequacy of petroleum products.

A small group of brain trusters worked out a beautiful theory of civilian steel requirements based upon national income. From this theory they derived a fantastic figure of steel requirements for 1941 and 1942.

### Alarmists Blamed

The publicity given to this estimate by the government propaganda machine accentuated the alarm about steel scarcity and intensified the forward buying movement—thus making matters worse.

These same brain trusters also are driving for a 10,000,000 ton increase in steelmaking capacity. Should they succeed in this effort, precious time, man-hours, material, and equipment must be diverted from present production to construct facilities which cannot be ready in less than 2 years and probably would be a white elephant when completed.

This would compound the mistakes already made by the coterie of spend-lending brain trusters.

### Oil Shares 'Ailment'

Finally, in viewing the problem of steel supply, remember that the steel industry and the petroleum industry have shared a common ailment. For years they have suffered from over capacity.

Nevertheless, both have been alert to quickly changing conditions. Over a long period of years both have managed somehow to meet sudden increases in demand satisfactorily.

After all, the only new factor in the present situation is a government administration that is unsympathetic with industry and for that reason is inept in mobilizing the nation's facilities for the emergency.

But even that handicap will be hurdled by the tremendous latent power of the industries of steel and oil to meet any challenge.

# Force Needed to 'Educate' 'Gas' Savers, States Ickes

NPN News Bureau

WASHINGTON, July 7.—Oil Co-ordinator Ickes is planning to enlist city officials and highway police in a campaign to "educate" East Coast motorists in the conservation of gasoline, but he believes that purely voluntary methods cannot be counted on to produce the desired results.

"I suspect that it is going to require something more than persuasion to induce people to use oil and gas more economically," Mr. Ickes stated at his press conference last week, suggesting "a few judicious arrests" would be necessary to make his projected East Coast gasoline conservation program effective. The Co-ordinator also advanced as a plan that "might work," the idea of getting filling stations to refuse to sell gasoline to motorists unless they showed cards proving their automobiles had been inspected for proper carburetor adjustment and such other adjustments as to insure most economical gasoline consumption.

**Seeks Co-operation**

Mr. Ickes' statement of his plan to inaugurate a campaign to induce motorists to conserve gasoline along the East Coast and his views on how this could be done were advanced during a press conference discussion of the progress being made by the District of Columbia Petroleum Conservation Committee with its program to persuade local motorists to save 20% in gasoline consumption by keeping their engines at maximum operating efficiency and by avoiding quick starts and high speeds. (See NPN July 2, p. 10).

Previous to his press conference, Mr. Ickes had issued a statement asking motorists using parkways in the national capital to assist the District Conservation Committee in saving gasoline, but which at the same time warned that those motorists who did not co-operate would be arrested by park police, starting July 5. Later at his press conference, the Co-ordinator said he planned to extend this program of arresting gasoline-wasting motorists to all national parks, irrespective of whether they might be situated on the Atlantic Seaboard or elsewhere.

**Mentions Fuel Oil**

Mr. Ickes, in assailing wasteful practices by motorists, mentioned specifically "jack-rabbit starts" which he described as racing motors unnecessarily, and the operation of "oil-burner" cars, which vehicles were classified by the Co-ordinator as those "emitting offensive quantities of smoke and gas fumes due to improper carburetion." Such "oil-burner" cars not only waste much gasoline but also disturb people in the park, Mr. Ickes said.

A similar policy for the conservation of fuel oil also was suggested by Mr. Ickes, who, however, did not suggest that householders be arrested for failure to keep their burners at maximum operating efficiency. He did say though that he felt the oil-burner service men "as a contribution to national defense" should see that all burners are in first-class condition by fall. All persons who could, should convert from oil to coal, Mr. Ickes said, but added this might cause transportation difficulties in coal this winter.

That some sort of restrictive measures would very possibly be needed and would take the form of the plans put forth by the Oil Co-ordinator was the view of Major Beverly C. Snow, assistant engineer commissioner and chairman of the District of Columbia Petroleum Conservation Committee. In an effort to prevent anything more drastic than voluntary gasoline conservation steps, the Committee, last week, formally launched its program for a 20% reduction in civilian consumption of gasoline and appealed to the 167,000 registered District motorists to adopt sensible conservation steps "in the face of federal restrictions on motor fuel consumption."

Announcing that 10,000 posters and windshield stickers bearing the slogan "Make Four Gallons Do What Five Did Before," will soon be distributed throughout the District, Major Snow urged that motorists adopt the "good neighbor" policy of offering lifts to friends and associates wherever possible and asked that whenever they could, car owners turn to mass transportation facilities.

# If It's a Problem About Oil Ickes Will Handle, He Says

NPN News Bureau

WASHINGTON, July 5—Any national advisory committee set up for the petroleum industry will be attached to the Oil Co-ordinator's office and not the Office of Production Management, according to Oil Co-ordinator Ickes.

Mr. Ickes also believes that the President's letter naming him as oil co-ordinator supersedes all previous orders giving the OPM power to deal with problems relating to oil. He further believes that to avoid duplication of effort it would be best if all federal agencies having oil problems would take them up with Deputy Oil Co-ordinator Davies as they arise through representatives named for this purpose.

Such were the clues provided by Oil Co-ordinator Ickes during his press conference this past week, to what he regards as the manner in which he should exercise the oil co-ordinator powers granted him by the chief executive.

**His Office Sufficient**

Replying to a reporter's question about the possible location of a national oil advisory committee, in view of the statements of OPM Director Knudsen at his June 24 press conference, Mr. Ickes replied it would be in the co-ordinator's office and that "there would be no reason" for one in OPM. Mr. Knudsen at his June 24 press conference, in announcing plans for the reorganization of OPM into commodity sections, said that there would be one for oil, and that each of these commodity sections would have an industry advisory committee.

Mr. Ickes then was asked about the status of OPM's oil activities, to which he answered that as he "understood what the President said in his letter, it supersedes all previous orders."

"They ought to stop this duplication. I think it would be best to have regular representatives of all organizations concerned to meet with Mr. Davies and discuss problems as they arise."

Immediately preceding the Ickes press conference, representatives of the 24 federal agencies having an interest in oil had met with Mr. Ickes at his request.

**Conference Discussions**

Among the subjects discussed, according to the report made to his press conference by Mr. Ickes were:

Shortage of tankers in South American service; substitution of coal for oil; building new tankers; an educational campaign to induce East Coast motorists to conserve gasoline; and further diversion of tankers to British service which Ickes said "is not improbable" although there was nothing definite he could say on this.

Those attending the conference, Mr. Ickes said, included: Assistant War Secretary Patterson; Navy Secretary Knox; OPM Deputy Production Director Batt; OPM Oil Consultant R. E. Wilson; Cultural Relations Director Rockefeller; Labor Secretary Perkins; State Department's Acheson; Price Administrator Henderson; Maritime Commission Chairman Land; Assistant Agriculture Secretary Appleby; Interstate Commerce Commissioner Eastman; Federal Trade Commissioner March and Deputy Oil Co-ordinator Davies.

# Gasoline Rationing Seen as 'More Fair'

NPN News Bureau

CLEVELAND, July 7.—Following Oil Co-ordinator Ickes' recent remarks that gasoline rationing, rather than "gasless Sundays", might be put into effect along the East Coast, the *Cleveland News* printed the following editorial:

**Ration vs. 'Gasless Sundays'**

We note with interest and approval that Secretary Ickes, as unofficial czar over petroleum production for defense, is now talking about rationing systems rather than "gasless Sundays." The ration plan will be more fair.

Twenty-four years ago, a "gasless Sunday" was not a tremendous hardship on the great mass of the people. It would be today.

Twenty-four years ago, "gasless Sunday" did not mean depriving city people of a week-end trip or a half day of fresh air and change of scene. Today it would mean just that. In the intervening quarter century, America has gone solidly to wheel; life has changed routines in order that the majority of people can see their countryside, their states, their nation at the week-end interval. The lives of all of us have come to depend on this week-end transmigration, during all the months of clear weather.

In 24 years, state parks, intersectional baseball and football games, fishing trips, and just plain, relaxed touring have entered the habits of all the people.

Gasless Sundays would be no great hardship on the well-to-do. These can hop off Friday or Saturday and return Monday morning. The majority of city dwellers have to motor on Sunday to get the same recreation.

The American people will do anything to help defense. If it will help defense to cut down on civilian use of gasoline, they will do that without a grumble. They should be asked to do so—if it becomes necessary to conserve to this extent—in the way that will most nearly preserve the regular habits of modern life and be equally just to all the people, regardless of means.

# Press-time Bulletins

(*Continued from page 5*)

**gasoline sales would have grave reactions on thousands of American tourists coming to Canada. However, Canadian government reportedly plans to ask public, through press and radio, to curtail use of gasoline voluntarily because question of supply is acute.**

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**TO SEEK GOVERNORS' AID**

**WASHINGTON—Oil Co-ordinator Ickes is expected to approach governors of East Coast states this week on a campaign to "educate" motorists to use gasoline more economically, an Oil Co-ordinator's office spokesman said today.**

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**LOWER RAIL RATES**

**WASHINGTON—Because oil companies and the railroads are giving evidence of being able to work out satisfactorily the question of lower rates by tank car for petroleum and products to the East Coast voluntarily, there appears no reason for the Interstate Commerce Commission intervening, ICC Commissioner Eastman said today, adding that he had reported to Oil Co-ordinator Ickes to this effect.**

**Report was made after Mr. Eastman completed a survey at the request of Mr. Ickes, ICC Commissioner stated.**

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**OPACS NAMES ASSISTANTS**

**WASHINGTON—Following men were named today to aid Office of Price Administration and Civilian Supply: J. Elmer Thomas, advisory consultant to fuel section. Temporary assistant to Thomas will be Allan F. Hand, Los Angeles. Others named include Alden W. Foster, Pittsburgh, consulting geologist in gas properties; Joseph Gordon, New York, petroleum economist with Fenner & Beane and Robert N. Moore, Decatur, Ill., marketer. Announcement was made by Dr. J. K. Galbraith, deputy OPACS administrator in charge of fuel section.**

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### Sohio Votes for CIO

CLEVELAND, July 5.—Refinery employes of Standard Oil Co. of Ohio, voted 255 to 35 this week for the Oil Workers International Union (CIO) against the Assn. of Petroleum Workers, independent oil union.

### Texas Awarded Judgment In Chain Tax Case

*Special to NPN*

AUSTIN, July 8.—District court here today granted Texas $906,138 judgment against Humble Oil and Refining Co. for back chain store taxes.

Judgment was biggest in state's history for tax decisions. Humble immediately gave notice of appeal.

Suit was for chain store taxes from 1936 through 1941 and was filed after Texas Supreme Court ruled filling stations are not exempt from these levies. Last legislature amended chain tax law to exclude filling stations hereafter, but door was left open for attorney general to sue other firms for back taxes.

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## Mississippi Crude Shipped to Illinois

TULSA, July 8. — Flow of Mississippi crude, which normally is south to the Gulf Coastal refiners and to storage, has been reversed and today a major portion of Mississippi's output of almost 25,000 bbls. daily is refined locally or rail-shipped to Illinois refineries to bolster supplies from Illinois and Nebraska oil fields.

At present, Illinois refiners are processing 7200 bbls. of Mississippi crude. These plants had previously obtained oil supplies from Illinois and Nebraska, but were forced to extend purchases almost half across the country to obtain additional supplies. The Mississippi oil is shipped to Illinois by tank car. Numerous plans of utilizing a combination of water and rail or pipeline, water and rail have been considered, but so far no action has been taken to build the short pipeline from the field to the river or to charter barges for delivering the crude up the Mississippi River.

**See Increased Movement**

Mississippi's shipments to Illinois may be increased to 11,500 bbls. daily if negotiations for purchase of additional tank cars are closed. But at present, shippers report a shortage of 10,000-gal. cars used in crude deliveries. Use of 8000-gal. tank cars is reported and in order to warrant their use, shippers are asking adjustments in rail rates on minimum deliveries of 8000-gal. lots.

"Local refineries"—at Vicksburg, Memphis and Crupp (near Yazoo City, Miss.)—are now processing approximately 10,000 bbls. of Mississippi oil.

**Southwest Oil Reverses**

Reversal of the flow of crude from southwestern oil fields, too, has been under way for several months. It is estimated in some sources that 120,000 bbls. of crude from Texas and Louisiana are moving into the Mid-West and East by pipeline. Most of it goes to supply midwestern refineries, although approximately 30,000 to 35,000 bbls. is moved on to the East Coast. More southwestern oil —possibly as much as 40,000 or 42,000 bbls. daily—will be moved to the East Coast as soon as looping and other pipeline expansion of present facilities is completed, it is believed.

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### Pennsylvania Passes 'Fair Trade' Bill

*Special to NPN*

HARRISBURG, July 5.—Pennsylvania supplying companies have been granted authority to establish minimum resale prices on branded gasoline under a newly-enacted law.

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## Cole Pipeline Bill Delayed by Senate

NPN News Bureau

WASHINGTON, July 8.—Senate Interstate Commerce Committee action on Cole Pipeline Bill before next week was said today by committee to be doubtful.

Committee Chairman Wheeler, meanwhile, was reported as having told Oil Co-ordinator Ickes that he would call a meeting of his group to consider Cole measure as soon as a quorum of committee members could be secured.

E. B. Swanson, associate director of Interior Petroleum Conservation Division, who testified before Truman Subcommittee for Oil Co-ordinator Ickes, said he had received no word about a further appearance before that group. Nor did he, he said, have any comment to make on statements made by Sen. Gurney, S. D.

**Gurney Not Satisfied**

Sen. Gurney, in statement last week, declared he had not received satisfactory answer to questions he raised about increased use of tank cars to haul petroleum products to the East Coast in view of the impending oil shortage, and that he felt proponents had not submitted sufficient proof to justify proposed Southwest-Atlantic seaboard pipeline, either from the standpoint of expense or diversion of steel from national defense.

"I have not received satisfactory answers to my questions," Sen. Gurney asserted. "The man they sent down from the Oil Co-ordinator's office, Mr. Swanson, was completely uninformed and was unable to supply the subcommittee with any figures, either in the public or executive sessions."

## Idle Tank Cars Reduced 20%

NPN News Bureau

WASHINGTON, July 8.—Greater use by the oil industry has reduced idle tank cars by 20% since the American Petroleum Institute fact-finding committee estimated in its report (NPN, June 4, p. 5) a total of 20,000 such idle tank cars as of mid-May, Oil Co-ordinator Ickes stated today.

There is, however, even with the intensified utilization of tank cars to meet the East Coast situation, still opportunity for speeding up their use. Mr. Ickes declared, saying "the principal bottleneck is the habit of taking too much time in unloading and failure to return cars promptly."

Oil Co-ordinator reported various East Coast oil companies have replied as follows to telegrams sent June 25 urging greater use of tank cars:

**May Use 1400 Tank Cars**

Shipment of crude from Lima, Ohio, to the New York refining area, which started this week, is amounting to about 5000 bbls. daily. Starting with 200 cars, this movement ultimately may require 1400 tank cars.

One company has transferred the source of gasoline for its bulk plants in Tennessee, Virginia, and West Virginia from East Coast terminals served by tankers to an inland refinery for movement by tank car.

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## Speed Re-Marking For Tanker Loads

NPN News Bureau

WASHINGTON, July 8.—Issuance of new load-line assignments for coastwise tankers are being expedited so that all vessels may be re-marked the next time they reach port, Bureau of Marine Inspection reported today, adding that 70 new assignments were sent tanker owners July 7 and balance will be forwarded as rapidly as possible.

New assignments are being issued under Bland Load-Line Bill signed by President Roosevelt July 3, and are expected by government authorities to increase Gulf-East Coast movement of crude by 30,000 to 40,000 bbls. daily — in other words increase effectiveness of the coastwise tanker fleet by the equivalent of 8 to 10 new tankers.

# Texas' Governor Vetoes Bill Outlawing 'Selective Buying'

*Special to NPN*

AUSTIN, July 7. — Uneasy lies the heads of those oil men to whom selective buying is an evil and product of the Devil only slightly less damnable than federal control and Communism.

For Texas' Gov. W. Lee O'Daniel has vetoed the Clark bill which gave the Railroad Commission power to outlaw selective buying—and the legislature, by lack of 1 vote in the Senate, failed to over-ride the veto.

Thus, the future of Texas oil proration is again anybody's guess. A triumphant majority of the commission had gone to bed one night convinced that their troubles were over, that their "yardstick" plan of proration was here to stay. They awoke the next morning to find that the enigmatic Gov. O'Daniel had vetoed their carefully drawn bill as "undemocratic and confiscatory", among other things.

**Proponents 'Shocked'**

Gov. O'Daniel's veto message came on the morning of the last day of the legislature's record session, attended by the confusion, crush of business and horseplay reminiscent of the last day of school. Shocked proponents of the anti-selective buying bill then began collaring members for an immediate vote to override the veto.

In the House they were successful, over-riding by 94 to 35. Then the fight moved to the Senate. Sen. Jesse Martin of Fort Worth, leader of the opposition, first attempted to block a vote on over-riding. But then, after a hurried count of noses, he saw that the bill would fail and withdrew his objections and demanded an immediate vote. When pudgy Senate Clerk Bob Barker added up the "ayes" and "nays", 20 members had voted to over-ride and 8 opposed—one vote less than the required majority.

**Grabs Hat and Runs**

Failure of a dramatic dash by Sen. John Lee Smith to reach the Senate chamber in time to cast his vote is credited for the defeat of the bill. Sen. Smith was in California attending a convention when he was informed of the governor's veto. He hurriedly boarded an east-bound plane scheduled to put him in Austin just in time to shout "aye". But a West Coast fog suddenly blew in at Burbank and delayed his ship 40 minutes.

Faced with at least 2 district court injunctions against enforcing its present proration policies, the Clark bill was endorsed by Commissioners Jerry Sadler and Olin Culberson as a means of getting around the injunctions and saving their "yardstick" formula for proration. Under the original law creating the Railroad Commission, the commission is empowered to prorate wells only when there is evidence that there would be physical waste without proration.

**Based Hope on Bill**

There was no provision made for proration in order to hold up prices or to prevent big producers from freezing out little ones. The original law did not recognize such new-fangled and scientific proration yardsticks as well spacing, depth of wells, types of crudes and the like. It was on this that the district courts held the commission exceeded its authority with its state-wide demand formula of allocating production.

The commission immediately appealed the injunctions to higher courts, but based most of its hope on the new law getting through before the appeals came to trial. Failure of the Clark bill to go through puts new emphasis on the appeals cases.

**Bill Split Industry**

The Clark bill found the Texas oil industry split, resulting in recriminations between oil companies as well as between members of the legislature. Companies opposing it were generally those who owned both production and transportation facilities. These companies, able to show proof that they had a market for, say, 100,000 bbls. daily from their own fields, were denied the right to produce it by the commission. The commission would allow the firm to produce say 50,000 bbls. and split the remainder between small producers.

One legislator, after the reading of the governor's veto, angrily charged, on the House floor, that the governor had been "running with the wrong crowd." In the heat of the final day's debate, Rep. Lester Clark, author of the bill, shouted "it's a lie" to one part of a bitter attack being made on the bill by Rep. Jack Love.

Both sides in the House and Senate condemned, on the floor, excessive lobbying activities by oil company representatives, who were present in force.

# Exploration Costs Held Accountable In Computing Federal Income Taxes

NPN News Bureau

WASHINGTON, July 7.— Costs of maintaining oil company geological and land departments are attributable in computing federal income taxes to the company's general operations incident to the production of oil and gas, Internal Revenue Bureau Chief Counsel Wenchel has held in a memorandum.

Ruling on the status of geological and land department costs in connection with the determination of the net income limitation on percentage depletion in the light of recent Board of Tax Appeals decisions, Mr. Wenchel states:

"Costs incurred in the business of exploiting a natural resource (including maintenance of geological and land departments), if properly deductible in computing net income, are also deductible in computing net income from the property for the purpose of determining the net income limitation on percentage depletion. Expenses which are not attributable to a particular producing property must be fairly allocated to the several producing properties. Where such costs have been properly capitalized, any loss deduction therefrom, taken in computing net income, must be included as a deduction in computing net income from the property for the purpose of the net income limitation." G. C. M. 22689.

Mr. Wenchel, in a second memorandum, has ruled on the "status of oil and gas leasing transactions for federal income tax purposes, including review of controlling cases and discussion of issues relating to acquisition and assignment of interests in oil and mineral properties, the division of income derived from the sale of the product among the parties entitled to a share therein, and the depletion allowances granted such parties." G. C. M. 22730.

Treasury Department, meanwhile, has amended section 19.23(m)-9 of regulations 103 relating to revised estimates for income tax purposes of mineral contents of mines and of gas or oil wells. T. D. 5054.

## California Producers Asked To Curtail

LOS ANGELES, July 5.— Telegrams have been sent by A. H. Bell, chairman of the Conservation Committee of California Oil Producers, to more than 1100 individual crude oil producers in the state, calling on them to curtail their oil production to the allowables set up by the committee.

Telegrams said: "Under the emergency of the national defense program, the President has appointed Secretary Ickes as Petroleum Co-ordinator. The co-ordinator has indicated that California operators must put their house in order under voluntary co-operation. The conservation Committee of California Oil Producers has unanimously voted to request all operators to indicate their support of the co-ordinator by immediately curtailing their wells to meet July allotments."

## Louisiana May Revise July Crude Quota

NEW ORLEANS, July 8.— Evidence presented so far at Louisiana Department of Minerals hearing here today to reconsider state's July allowable indicates market demand of 319,500 bbls. daily for Louisiana crude, 15,500 bbls. above Bureau of Mines demand forecast and 16,103 bbls. above Department's July order.

Louisiana's July allowable was reduced 16,103 bbls. daily, to bring total output below Bureau's demand estimate. But protests of purchasers that more oil was needed led department to call today's meeting.

Evidence presented indicates Gulf Coast stocks of Louisiana oil have decreased instead of increased as might be expected as result of tanker situation, it was said. A 319,500-bbl. July allowable, retroactive to July 1, would supply demand, most purchasers said, and would result in slight reductions in stocks.

Hearing was recessed to this afternoon. More testimony will be taken and careful consideration given before revised July order is issued, Joseph L. McHugh, departmental director, told NPN.

## Mexico Pays $300,000 For Penn Mex Property

NEW YORK, July 5—Penn Mex Fuel Co., subsidiary of Consolidated Oil Corp., has received payment of $300,000 in full compensation for properties of the company in Mexico, H. F. Sinclair, president of Consolidated, announced this week. Mr. Sinclair expressed appreciation of the promptness of the Mexican government in meeting its obligation.

# THE EDITOR'S PAGE

*Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and Publisher, Penton Building, Cleveland, O.*

## How Will Small Competitors Live If Majors are Forced to Absorb Higher Transportation Costs?

Who is going to absorb the increased cost from greater use of pipelines and particularly tank car-rail transportation, over lower cost ocean tanker, as this East Coast "shortage" develops?

Is the oil producer going to take less for his crude?

Is the pipeline or tank car owner going to absorb the increase?

Will the refiner deduct the additional cost from his FOB tank car price to the jobber?

Or will the jobber and the marketing departments take the cost and reduce their narrow margins still further?

Or will the dealers be asked to pass the cost on to the consuming public?

And what if the major integrated oil companies absorb this added cost and do NOT increase their prices, how will their smaller competitors fare who may not be able to absorb this added expense?

These practical questions today concern the oil men of the East Coast on the southern portion of which, particularly, many Independent jobbers supplied by Independent tankers, operate. But who knows what exigencies of war may disrupt oil supply to other parts of the country so that the same questions may be raised elsewhere? At the moment it may be argued that these higher costs apply to only 20% of the East Coast requirements. But that is 250,000 bbls. a day. A couple of cents per gal. more on this is the sizable amount of almost half a cent a gal. on all products consumed on the coast. From the way the government talks one can surmise that perhaps more tankers will be taken from coastwise service which will increase the cost of supplies still more, as other means of transportation are brought into use.

The above questions are prompted by the "request" of Oil Co-ordinator Ickes telegraphed last week to 30 leading oil marketers on the East Coast. In that telegram the co-ordinator said:

"I fully appreciate that tank car movement will in many ways be more expensive than movement by other means. However, I am sure you will consider some SACRIFICE JUSTIFIED (Caps are ours) IN THE CIRCUMSTANCES and you may find opportunities for minimizing cost additions through railroads' co-operation in matter of special rates."

Wherein the oil industry is "justified" in making "some sacrifice" has not yet appeared on any record that we have read or heard about. The oil companies were operating sufficiently large tanker fleets, in fact larger than generally necessary, until the war came along. The companies had anticipated obsolesence of old tankers and had built new ones, but to "accommodate" the Navy the companies had made these tankers faster and more expensive than they ordinarily would. The Navy took over these tankers, paying for them, and then took over 50 more which were not on the schedule.

Just why should the oil companies indulge in any more "sacrifice", and how is such a "sacrifice" to be "justified" to their stockholders?

While the oil industry, depending on present government estimates of its requirements, does not anticipate further disruption in its transportation methods and hence increases in its transportation costs, nevertheless, the oil industry might as well now consider the principle involved in this request.

That principle can be roughly stated in a question—

"Should an industry that pays large taxes to all branches of government, larger by far than other industries; that pays top wages and keeps its employment steady even through depression; that works on a narrow margin of profit; that is subject to all income and excess profits taxes; should such an industry be called upon further to pay out of its stockholders' pockets or the pockets of its employes, for increased operating expenses that are not due to any fault of the industry, but, if anything, are due solely to the short-sightedness of government?"

The New Deal seems to believe that business has a bottomless bucket of profits from which it can dish out higher wages, shorter hours, and now increased operating expense for the benefit of the government, without collecting any more money from the consumers. Business must insist that it must have profits, even during war time, and that if anything, profits are more necessary today than ever before in view of the terrific expenses that are being indulged in by government. The oil industry should stand on this American principle of free industry.

At the moment, this "request" of the Oil Co-ordinator's may seem largely a problem for the larger companies that own big fleets of tankers. However, there are smaller refineries that are supplying the East Coast, and many jobbers there who are dependent on these Independent sources of supply and other jobbers who buy from the major oil companies.

One of these larger companies, the Standard of New Jersey, the Co-ordinator announces, is now absorbing the increased cost of transporting crude oil by pipeline from the southwest to Lima, Ohio, and by tank cars from Lima to Bayonne, N. J. This is crude oil that the Standard heretofore has brought around by sea at a much lower cost.

This is a generous gift to the public and the government by the Jersey company. But is this war effort to be a competition in the generosity of companies? Does the Co-ordinator insist that every other company follow this example of the Standard of New Jersey?

Will other oil companies, either big or little, be criticized as "unpatriotic" if they believe that they cannot afford to donate their stockholders' money to this cause?

Or will they be criticized if they say that they have the money but they do not believe it is just for a government official to put public service on a charity basis?

How about the situation of the small company that has not the money and that would be "in the red" if it followed the "request" of the Co-ordinator?

The difference in cost between these various means of transportation is quite considerable, and it will be multiplied by a good many tens and hundreds of millions of gallons a month.

This is a decidedly practical marketing problem—yes and legal problem. It is the major companies whose tank car, tank wagon and even retail prices set the top limits of the market. If those major companies do not pass these added costs on to the ultimate consumer, how is a less fortunate company, particularly a small company, going to sell to jobber, dealer or consumer except at what may be losing prices? How can a smaller company sell at what may necessarily be higher prices, if it is to stay in business and compete with the majors?

What will happen to competition, of

which there is now a great deal on the East Coast, under such circumstances?

Is the East Coast business to be concentrated only in the hands of those major companies which have the cash in sufficient quantities that they feel that they can "afford" to absorb this increased cost? Or feel that they must do it for political reasons?

The government now has pending a suit charging the larger East Coast companies with being in a "monopoly". What about the monopoly that is bound to exist if the government pursues its present policy of "requesting" companies to "absorb" future increases in operating costs?

Does the government want to turn all the oil business on the East Coast over to the largest companies, stop shipments from the Independent refiners and force all East Coast jobbers to buy from the majors or go out of business?

The natural and inevitable consequence of the Oil Co-ordinator's request is so obvious that the oil industry, and the general public too, should by all means challenge the purpose of the government.

Then right here comes an echo from the ill-fated Madison oil cases.

IF the major oil companies absorb all this increased cost, as "requested" by the Oil Co-ordinator, would they not, in the eyes of the Department of Justice, be acting in a conspiracy to restrain or even destroy competition and to "affect price", in violation of the Sherman Anti-Trust and Clayton laws?

In fact, can any other company also agree to absorb this increased cost without being subject, and perhaps quite properly, of being accused of acting in conjunction with the Standard of New Jersey and with full knowledge that there probably are some companies that cannot afford this increased cost? And will not such joint action with the Jersey company make both or all liable to a charge of conspiracy in restraint of trade, and quite properly, too?

Oil Co-ordinator Ickes has announced that he is going to have all orders and other documents addressed to the oil industry published in "the government archives", which is supposed to give them a little higher legal status, at least such as to make it more embarrassing for other government departments to deny their existence. As these "orders" are published, the Co-ordinator says, he would send a certified copy to the Department of Justice so it could see how legal the whole business is.

However, to this suggestion, Acting Attorney General Biddle has replied that the Department of Justice wants to have opportunity to pass on any such "orders" before they are promulgated to the industry and to the public.

Has this "request" to the East Coast oil companies been submitted by the Co-ordinator to the Department of Justice?

Has the Department of Justice "approved" the making of this "request" and has it approved the joint action of the oil companies acting together under this "request" to absorb this extra expense whether some companies can afford to or not?

If the Department of Justice has "approved" action under this "request" does that mean that it will not prosecute the companies at any time for fairly responding to the "request"? Does it mean that those competitors who may be damaged by actions under this "request" cannot sue and collect for recompense as provided by the Sherman Anti-Trust Act?

These are not foolish questions. Even under the "old" Supreme Court's rulings joint action by companies to absorb costs unnecessarily and with the knowledge that such absorption would hamper and perhaps destroy competition, would unquestionably be condemned. But today we have the New Deal's Supreme Court interpreting all questions quite "broadly", as they say, and going to seeming great lengths to "preserve competition". In the Madison case, the New Deal's Supreme Court held that any agreement or understanding or action that "affected prices", whether up or down and regardless of the motive, was a violation of the Sherman Anti-Trust Act. And in that case there was a "request" from this same government official. It was not printed in the "archives", but even if it was we doubt if the prosecuting arm of the same government would have let it go into the evidence.

These are very serious questions not only for the major oil companies whose good faith and legitimacy of action might later be challenged as a violation of law, but they are serious questions for all the thousands of competitors of the major companies. These competitors are entitled to stay in business. It is the government's duty to see that they do stay in business.

## Ickes Says 'Dwindling Stocks'; Statistics Show INCREASING Stocks

Please, please, please, let us stick to facts in this East Coast "shortage" situation.

At his press conference Thursday Oil Co-ordinator Ickes is reported to have said that "East Coast stocks are dwindling rapidly."

Maybe they are, but the published figures so far do not show it, including the figures for the week ending June 28th.

On that day, the American Petroleum Institute's report of the East Coast's refining capacity showed gasoline stocks, finished and unfinished, of 22,888,000 bbls. which is an INCREASE in stocks for the end of June over the U. S. Bureau of Mines figures for last year. At the end of June, 1940, the figure was 22,754,000 bbls. The June 28th figure is an increase of more than a million bbls. over the end of May this year and an increase of more than 1,500,000 bbls. over the end of April, and this with the largest consumption of gasoline in history taking place.

On gas oil and distillate stocks for the same East Coast refineries the A.P.I. weekly report for June 28 shows 9,421,000 bbls.—up almost 400,000 bbls. from the end of May and up more than 500,000 bbls. from the end of April. The June 28th stocks were within 1,270,000 bbls. from the end of June, 1940, according to the U. S. Bureau of Mines figures.

On heavy fuel oil, the A.P.I. June 28th figures are 8,240,000 bbls.—up more than a quarter of a million from the end of May, up 40,000 bbls. from the end of April, and down 1,281,000 bbls. from the end of June a year ago.

While stocks of crude oil (domestic and foreign) at East Coast refineries were 3,500,000 bbls. less on June 28 than at the end of June, 1940, according to Bureau of Mines reports, most of this decline was in the late months of 1940 and early months of 1941. Actually, these stocks have increased 506,000 bbls. since the end of April, or 556,000 bbls. since the end of May, to 13,078,000 bbls. on June 28th.

This hardly indicates "dwindling" stocks.

If the Oil Co-ordinator has any figures that differ from these he should give them to the industry forthwith. And if he hasn't, then he should correct his own statements.

## We Do Not 'Educate' Citizens With Bayonets in this Country, Not YET

Getting the general public to use petroleum products wisely and efficiently is a long-time educational job, not one for the police to jump into with immediate arrests.

This last, however, is not only the "recommendation" but also the "order" of Oil Co-ordinator Ickes this last week. Ickes has "ordered" the cops in all national parks to "arrest" all whose cars "emit obnoxious fumes," "smoke," and who "spin" their engines and otherwise "waste" petroleum products with their cars.

Then Ickes "requested" all police officers on the East Coast to "arrest" motorists who thus offend the Co-ordinator's wishes.

There is not only a serious question of the tactfulness and good sense of these "instructions" but there is a mighty serious question as to their legality. There can be little question as to their futility. The people in this country have never responded well to being ordered around as to their personal habits and actions. Telling a motorist that he cannot spin an engine when he thinks he should is much more likely to start a hot argument than affect any "conservation" of the country's supply of motor fuel.

If any general "arresting" campaign is attempted by the national authorities it

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is quite likely that the oil industry will get the blame for it, unless the industry jumps in ahead of such a campaign, disavows it and then, if it is necessary, carries on intelligent educational effort. It is so easy these days for some people, at least, to imagine that it is "big business" that is interfering with their "rights" so it is not hard to imagine but that the oil industry will catch the criticism for misguided "law enforcement".

Calling for the arrest of a citizen is serious business, whether one thinks he is absolute czar of all who enter the nation's parks or not. A police officer has to have pretty good reason to take a person into custody, especially without first having gone to the necessary magistrate, and sworn to an affidavit regarding the "crime". Well-trained police officers are usually most careful of any illegal interference with a person's freedom. They know they can be sued on their bonds for false arrest.

Consider the predicament of a police officer trying to follow the Oil Co-ordinator's "requests" or "orders"?

A motorist's car puffs a blast of smoke from the exhaust. If the cop is something of a mechanic he knows that it may be entirely without the knowledge of the motorist; that the engine may have a bit too rich a mixture for idling for the temperature of this particular day but it may have been correct for yesterday's temperature; that the piston rings may be worn a bit but perhaps not enough to warrant the motorists going to the expense of new ones, at least not until after two pay days away.

Or the cop hears the motorist "spin" his engine. What is a "spin" anyway? Your motor can be a bit cold, maybe a drop of water has accumulated from the gasoline vapor in your line, or maybe you just thought the motor had stalled so you stepped on it instead of grinding in your starter with pressure on the starter button.

Or the cop sees you make a "jackrabbit start" as the newspaper stories label one of the Ickes' "crimes". What is such a start? Maybe you have been trying to get around a "road hog" or a big truck, or a street car. Does Ickes say you must not make such an effort else you waste a natural resource?

It is easy to pursue the idea of making these acts "crimes" into the ridiculous. It also is easy to see where sensible cops won't think of enforcing such "orders", in fact they won't even criticize let alone take a motorist to headquarters. It is easy to see where, if a pestiferous cop did undertake to enforce such "crime laws", the defendant motorists would certainly make plenty of noise. It also is probable that many a judge would refuse to hold such a "prisoner".

It is to be hoped that Ickes will restrain his quite well known desire to "crack down" and stop this nonsensical way of trying to "educate" a vast and intelligent and patriotic people. The car and truck owners are just as patriotic as Ickes ever thought of being. They will co-operate in any intelligent and constructive campaign to conserve oil or anything else, and they will do it to great inconvenience to themselves as was shown by the way the American people of their own free will and without the prod of any Ickesian bayonet in their rears, instituted and maintained the "gasolineless" Sundays in the last war.

The oil and automobile industries will put over any necessary campaign of teaching conservation to THEIR CUSTOMERS, the car owners, providing the campaign has sense to it, is considerate of people's rights, and is not going to turn into either a comic opera or another revolution.

Come, Mr. Ickes. Put up your bayonet and get back to the job of helping an intelligent and loyal people, both consumers and oil men, do what is necessary to protect the country's best interests.

Bayonets against the voters and taxpayers, especially those taxpayers who, by their thrift and effort have saved enough money to buy automobiles, do not belong in this country. At least not yet.

# Stock Figures Shoot Holes In 'Dwindling Supply' Talk

(*Continued from page* 5)

158,000 bbls. from 3,151,000 bbls. on May 3 to 2,993,000 bbls. on June 28, while in the comparable period a year ago stocks declined 540,000 bbls. from 4,140,000 to 3,600,000 bbls.

### Gas Oils Higher

Appalachian stocks of gas oil and distillates increased 57,000 bbls. from May 3 to June 28 this year, while in the same period a year ago stocks declined 64,000 bbls. Decline in residual fuels this year was 19,000 bbls., as compared with 135,000-bbl. decline in the May-June period last year.

Separate tabulations of the East Coast and Appalachian stocks figures will be shown in the statistical section of NPN each week hereafter.

## California Tanker Completes First Gulf-Atlantic Run

NPN News Bureau

WASHINGTON, July 7.—"W. H. Berg", a 100,000 bbl. tanker belonging to Standard Oil Co. of California, and one of 3 tankers recently diverted from the inter-coastal trade, has completed its first voyage from the Gulf to East Coast, Oil Co-ordinator Ickes reported today.

Three tankers, which were diverted under agreement between Oil Co-ordinator's office, California Standard and Sun Oil Co., will carry 9,000,000 bbls. of crude annually on Gulf-East Coast run, instead of 4,000,000 bbls. in inter-coastal service, Mr. Ickes estimated, adding that "a survey of the entire American tanker fleet is under way with the view of increasing its efficiency by the elimination of competitive practices such as cross-hauling and in obtaining quicker turnarounds."

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CLEVELAND, July 5—Refinery runs of Pennsylvania crude averaged 74,440 bbls. daily in week ended June 28, down 580 bbls. from previous week, according to report of National Petroleum Assn.

## TABLE 1

### East Coast Refinery Runs and Stocks

(From API current weekly figures, representing 100% of refining capacity. Comparable week in previous year is used. Figures in thousands of bbls.)

| Week Ended | Daily Avg. Crude Runs to Stills | | Gaso. Prod. at Refineries | | Stocks Finished & Unfinished Gaso. | | Stocks Gas Oil & Distillate | | Stocks Residual Fuel Oil | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 |
| May 3 | 611 | 535 | 1,651 | 1,469 | 20,787 | 23,615 | 8,004 | 5,975 | 8,717 | 7,948 |
| May 10 | 593 | 576 | 1,610 | 1,270 | 20,810 | 23,429 | 8,515 | 6,351 | 8,562 | 8,771 |
| May 17 | 570 | 590 | 1,628 | 1,333 | 20,587 | 23,487 | 8,879 | 6,598 | 8,156 | 8,752 |
| May 24 | 603 | 573 | 1,584 | 1,321 | 21,157 | 23,618 | 9,122 | 7,218 | 8,467 | 8,115 |
| May 31 | 574 | 585 | 1,635 | 1,463 | 21,657 | 23,603 | 9,060 | 7,615 | 8,012 | 8,646 |
| June 7 | 600 | 577 | 1,708 | 1,411 | 21,965 | 23,588 | 9,548 | 8,036 | 8,578 | 8,953 |
| June 14 | 558 | 590 | 1,603 | 1,456 | 21,705 | 23,357 | 9,405 | 8,745 | 8,109 | 8,551 |
| June 21 | 587 | 606 | 1,487 | 1,669 | 22,620 | 23,206 | 9,725 | 9,526 | 8,109 | 8,844 |
| June 28 | 600 | 561 | 1,645 | 1,492 | 22,888 | 23,043 | 9,421 | 10,401 | 8,240 | 8,842 |

## TABLE 2

### Appalachian District (including eastern half of Ohio) Refinery Runs and Stocks

(From API current weekly figures, representing 91.0% of refining capacity. Comparable week in previous year is used. Figures in thousands of bbls.)

| Week Ended | Daily Avg. Crude Runs to Stills | | Gaso. Prod. at Refineries | | Stocks Finished & Unfinished Gaso. | | Stocks Gas Oil & Distillate | | Stocks Residual Fuel Oil | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 |
| May 3 | 134 | 118 | 431 | 387 | 3,151 | 4,140 | 361 | 397 | 489 | 615 |
| May 10 | 130 | 121 | 427 | 411 | 2,996 | 4,084 | 341 | 384 | 486 | 643 |
| May 17 | 127 | 124 | 466 | 432 | 2,852 | 4,022 | 337 | 377 | 476 | 654 |
| May 24 | 123 | 118 | 466 | 374 | 2,957 | 3,960 | 379 | 365 | 470 | 661 |
| May 31 | 120 | 115 | 431 | 401 | 3,082 | 3,862 | 356 | 342 | 432 | 644 |
| June 7 | 131 | 119 | 422 | 430 | 3,047 | 3,812 | 353 | 335 | 420 | 633 |
| June 14 | 130 | 123 | 410 | 464 | 3,024 | 3,688 | 369 | 343 | 419 | 598 |
| June 21 | 134 | 116 | 490 | 442 | 2,924 | 3,672 | 356 | 336 | 419 | 561 |
| June 28 | 141 | 123 | 511 | 401 | 2,993 | 3,600 | 418 | 333 | 470 | 515 |

# WITH THE ASSOCIATIONS

## ASTM Adopts Specifications For Commercial Plane Fuels

NPN News Bureau

CHICAGO, July 5.—Specifications for three grades of aviation gasoline for commercial use were adopted as tentative standard at the annual meeting here of the American Society for Testing Materials. They vary chiefly as to their ASTM knock values, which are repectively 73, 91 and 100.

The specifications, methods of test to determine them, and also a test method to determine the knock characteristics of aviation fuels, were contained in the annual report of ASTM Committee D-2, on petroleum products and lubricants which was adopted by the Society June 25 with minor revisions.

**Replace 5 Grades**

The new specifications replace requirements for 5 grades of aviation gasoline for commercial use proposed in 1939 by Committee D-2, and published as information only in its report of that year to the ASTM. The 5 grades were designated by the following ASTM octane numbers: 73, 80, 87, 90 and 95. The 1939 specifications contained minimum as well as maximum requirements for tetraethyl lead content, but the minimum requirements have been dropped in the new standards since the method of knock test of aviation gasoline has been developed.

The adoption by the ASTM of standards for aviation grade gasoline was urged particularly by representatives of the air lines, who said it was likely that the government specifications for aviation fuel for the Army and Navy would be changed more frequently and would also be made more severe, than was necessary for requirements for commercial use.

**Began Work in '38**

The work of preparing the standards for aviation gasoline was started in 1938, at the request of the Air Transport Assn. of America, by the Survey Division of the Co-operative Fuel Research Committee. There were then a score or more of existing aviation gasoline specifications. This group, which consisted of representatives of the leading air lines, engine manufacturers and refiners, reached agreement on specifications for the 5 grades which were proposed in 1939. Since that time, the Aviation Fuels Division of the CFR has worked with Committee D-2 on further simplification by reducing to 3 grades.

Committee D-2 in its report points out that the specifications now adopted as tentative standard are for the use of purchasing agencies in formulating specifications for purchases of aviation gasoline under contract.

"These specifications are not a definition of aviation gasoline, nor do they include all types of fuel satisfactory for spark-ignition aviation engines," states the report. "Certain equipment, or conditions of use may require fuels having special characteristics."

**Act on Motor Fuels**

At this meeting of the ASTM, action was also taken to withdraw from standard, pending revision, the ASTM test for knock characteristics of motor fuel. This is to allow the inclusion in this test of a procedure for humidity control, which procedure has been developed and incorporated in the new ASTM test for knock characteristics of aviation fuels. Its use is prescribed as necessary when the air in the room where the test engine is operated contains more than 50 grains of water vapor per pound of dry air.

The test for knock characteristics of aviation fuels for use in aircraft engines of the spark ignition type differs from the knock test for motor fuels principally in the manner in which combustion characteristics are measured. In this method, a thermal plug is used for comparing temperatures in the cylinder, while in the motor fuel method, knock intensity is measured by a bouncing pin and knock meter.

**Describe Grease Test**

In their paper on "Performance Specifications for Grease", presented at the same meeting of the ASTM, R. C. Adams and H. E. Patten, of the U. S. Naval Engineering Experiment Station at Annapolis, described special test equipment and methods in connection with performance specifications developed by the Navy. Plasticity, leakage, bleeding and resistance to oxidation are measured under accelerated or simulated service conditions and the navy specification requirements are based upon these results, instead of upon composition. This performance testing, the paper brought out, permits the identification and purchase of superior quality greases, with overall reduction in costs of lubrication, despite some increases in unit cost. The Navy for some time has purchased lubricating oils based on work factors, arrived at through performance tests.

### Cleveland Dealers Plan Third Annual Picnic

NPN News Bureau

CLEVELAND, July 7.—The third annual petroleum industry picnic, sponsored by the Cleveland Assn. of Petroleum Retailers, is scheduled for July 31 at Euclid Beach Park, Cleveland, states Otto Hlad, president. Last year, the picnic was held at Geauga Lake Park and about 25,000 attended. (NPN July 24, 1940, p. 21). Cleveland dealers this year are urged to "close shop" and move en masse to Euclid Beach.

### Rhodes Elected Chairman Of Arkansas A. P. I. C.

TULSA, July 7.—J. T. Rhodes of Little Rock, division manager, Standard Oil Co. of Louisiana, has been elected chairman of the executive committee of the Arkansas Petroleum Industries Committee. Other officers elected were M. W. Edington of Little Rock, Gulf Refining Co. and T. M. Martin of El Dorado, vice-president, Lion Oil Refining Co., vice-president and W. F. Scarborough of Little Rock, Oil Dealers' Assn. of Arkansas, secretary.

Mr. Rhodes succeeds M. R. Springer of Little Rock, division manager of Lion Oil Refining Co.

## Salary Scale Based Upon Actual Wages Is Ruling of Court

NPN News Bureau

WASHINGTON, July 5. — Regular wage is to be computed upon the basis of wages actually received each week, divided by the number of hours worked each week.

This is the ruling pointed out today by General Philip B. Fleming, administrator of the Wage and Hour Division, following a decision rendered in a case of awarding back pay to several employes of Mid-Continent Petroleum Corp. and Cosden Pipe Line Co. Decision was rendered by Judge Eugene Rice in U. S. District Court of Muskegee, Okla.

Danger of attempting to compute additional pay for overtime for an employe covered by the Wage and Hour Law at a rate of "less than one-half times the regular rate at which he is employed", as required by statute, was cited by Mr. Fleming.

The suit was brought by Hubert Hargrave, agent for certain employes of the company, and judgment was entered effective June 27, 1941.

**Law Held Applicable**

In awarding back pay to several employes, of Mid-Continent and Cosden, engaged as watchmen to guard the company's property, the court held that this work came within the coverage of the Fair Labor Standards Act as a type of work necessary to the production of goods for commerce. The Fair Labor Standards Act (Wage and Hour Law) applies to employes engaged in interstate commerce, or in the production of goods for interstate commerce.

The employes in question were paid more than time and a half for their overtime if computed upon the "30 cents" stipulated in the Law as minimum wages. But, the court pointed out, the watchmen were employed at more than the mini-

mum rate and therefore the minimum was not the "regular rate" for the purpose of determining overtime compensation.

In addition to awarding restitution for the overtime actually earned, the court ruled, as provided in the Act, that the employes affected are entitled to an equal sum as liquidated damages. Reasonable attorney's fees are also assessed against the defendant.

## Missouri Jobbers Attack Oil Prices

(*Continued from page 5*)

Mid-Western sections of the U. S.

**Text of Telegram**

Text of the M.I.O.J.A.'s wire to Mr. Henderson follows:

"During the month of June the tank car price of gasoline was raised 0.375c a gal. in Standard of Indiana territory. This constant advance in tank car prices will if left uncurbed put 10,000 independent oil jobbers out of business. If this happens the major oil companies will have their monopoly complete and the public will then find out what monopoly does to prices. We are certain that your department is not desirous of seeing this happen and we urge you to take immediate steps to investigate and correct the situation. With an estimated 19 billion bbls. of oil in the ground at our disposal and with consumption up 20% these raises are absolutely uncalled for. We will appreciate your co-operation."

**Urge Wire 'Barrage'**

At the same time, membership of the M.I.O.J.A. was urged to barrage the Office of Price Administration and Civilian Supply with supporting telegrams, since "the history of the oil industry is one of monopoly and control by the majors". Unless a united front is presented by the independent jobber, the announcement predicted, "there will be little hope of your survival through the present emergency . . . and if you don't survive through this emergency, then you will never have a place in the oil industry after the emergency is over."

### Wyoming Crude

FINDLAY, O., July 7.—The Ohio Oil Co. has announced a 20c per bbl. increase in price it will pay for Lance Creek, Wyo., crude. New price, effective July 1, is $1.12 per bbl.

TULSA, July 7.—Discontinuance of its posting of $0.92 per bbl. for Lance Creek, Wyo. crude, effective July 1, has been announced by Standard Oil Co. (Indiana).

## Transfer of More Tankers Held as 'X Factor' in East By Standard of New Jersey

(*Continued from page 6*)

ing along the East Coast's lifeline".

**'Unknown Factors'**

Rub comes, however, from 2 factors. First, the unknown quantity which constitutes the amount of further tanker tonnage to be requisitioned for British service; and second, the fact that railroads' estimation of their ability to supply the East Coast is overly-ambitious in that tank cars reported idle cannot be put into service immediately and it is doubtful that locomotives are available to haul 19,000 tank cars, or the trackage to insure their movement without congestion with other necessary defense deliveries.

To produce the necessary tank cars is an involved and complicated task, requiring perfect co-ordination of facilities and personnel, article states. Loading, unloading and shipping of cars must be carried out on Saturdays, Sundays and holidays, instead of the present 5-day shipping week; all cars in bad order must be put into shape for safe operation immediately; shippers must use only the most direct route and distributors and consumers must set up facilities for prompt unloading of cars every day in the week; shipments must not be deferred or advanced in anticipation of freight rate changes, price changes or tax adjustments and railroads must co-ordinate this effort with train schedules which insure prompt movement, Jersey Standard believes.

**Barrel Cost by Rail**

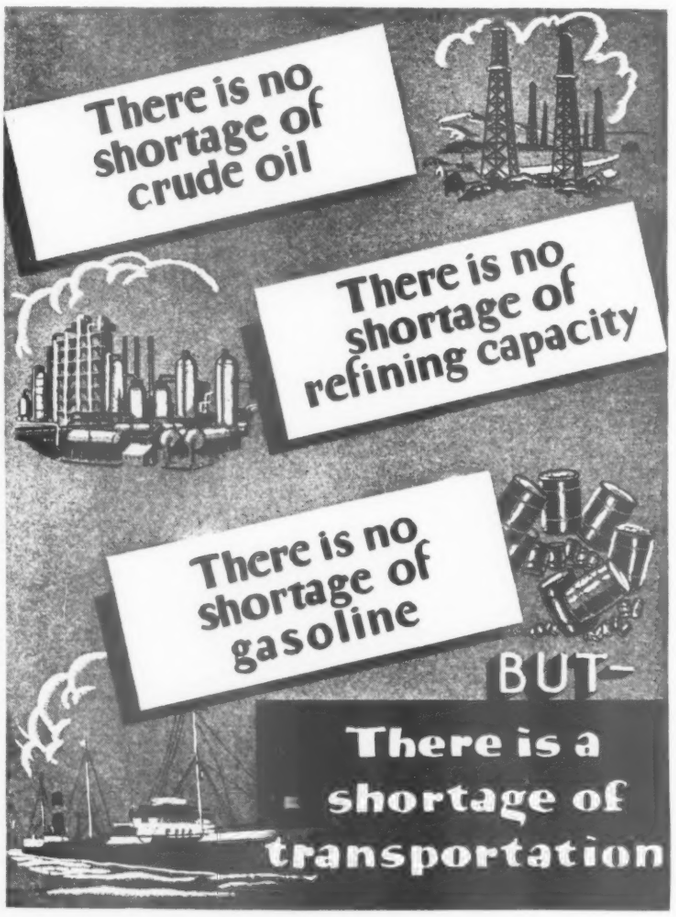
However, present railroad tariffs on crude oil shipped by rail from east Texas to New York are $2.37 a bbl., comparing with 67.5c by pipeline (excluding gathering charges) and 53c by tanker, article points out.

During the next 9 months, an average transportation shortage the equivalent of 49 ocean-going tankers of 10,000 tons each is anticipated, with the peak shortage of 64 tankers expected to be reached late in 1941, the Jersey company states.

Theoretically, 35.8 tankers of 10,000 tons each could be saved through steps already discussed by the industry with Oil Co-ordinator Ickes. These include easing of load-line limits on tankers; elimination of U. S. intercoastal movements; re-arrangement of South and Central American shipments; use of Halifax as the transfer point on all shuttle-service shipments to British tankers; more efficient use of barges; and possible relief from pipeline completions.

In addition to the 35.8 tankers saved through these means, the railroads, if capable of delivering even half of the 200,000 bbls. daily that has been claimed for them, would save an additional 25 tankers, or over 60 in all—enough to take care of the next 9 months before new tankers begin to come off the ways and new pipelines are completed, the article concludes.

**Transportation is Only Problem**


There is no shortage of crude oil
There is no shortage of refining capacity
There is no shortage of gasoline
BUT-
There is a shortage of transportation

*Here is how Esso Marketers, marketing subsidiary of Standard Oil Co. of New Jersey, views the present East Coast transportation problem. Above is reproduction of cover of July issue of THE ESSO DEALER*

### To Resume Operations

TULSA, July 7.—Magnolia Petroleum Co.'s newly-renovated refinery at Fort Worth, Tex., will begin operations early next week, according to reports.

The company's new gas line from West Ranch field to its Beaumont, Tex., refinery is scheduled for completion the first of next year, and will supply the plant's fuel requirements.

### London Gasoline Use Cut by One-Sixth

NPN News Bureau

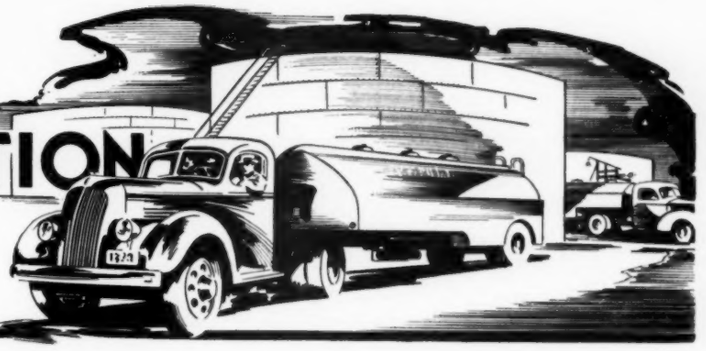
CHICAGO, July 8.—Gasoline rationing for private citizens in London has been reduced by one-sixth, according to an Associated Press report.

This means, report states, that motoring per car has been from 200 to 165 miles a month.

"An owner of an 8-horsepower car now is allowed 5 gals. of gasoline a month and the owner of a 10-horsepower auto about 6 gals. The lower ration would go into effect Aug. 1.

"Motorists given supplementary allotments because of military, special business or professional responsibilities will be compelled to keep log books."

# OIL TRANSPORTATION



## Suggest Wider Trucking Areas To Relieve Eastern 'Shortage'

NPN News Bureau

TULSA, July 7. — With an all-out effort by the oil industry to solve its one transportation bottleneck created by government requisitioning of oil tankers, some southwestern refiners point to the long-range hauling of petroleum products by tank truck and suggest a combination of trucking with other existing transportation facilities would go a long way toward elimination of this bottleneck and prevention of inconveniences to consumers of petroleum on the Atlantic seaboard.

Several refiners visualize the transportation picture in the Southwest, Middle West and North as a series of concentric circles representing roughly the marketing territories served by truck transports from a refinery, marine or pipeline terminal situated in the middle of each circle. The distances trucks haul from these origin points, they say, is governed largely by the extent to which rails have reduced short-haul rates to meet truck competition. This factor, too, governs volume of petroleum shipped within these marketing areas by truck.

### Widen Truck Areas

While the so-called "economical trucking radius" is considered to range up to 250 miles distance, truckers today are widening that range to as far as 500 miles. Kansas gasoline is now being shipped as far north as northern Nebraska, over to the Mississippi River in Missouri, to northeastern Colorado destinations and into Iowa.

These 500-mile hauls by large truck transports carrying 4000 to 5200 gals. of gasoline per trip have led some refiners to suggest a possible solution to the Gulf-to-East Coast transportation problem. With the concentric circles still in mind, it was suggested that to relieve Gulf Coast refiners of any excess gasoline that might result from sacrifice of tankers to the government, that these refiners on the Gulf Coast be permitted to truck their products as far North into Texas as possible. North Texas refiners would move their products as far north into Oklahoma as practicable, and Oklahoma-Kansas refiners would truck their products as far up into the Mid-Western area as possible and into the back door markets of Mid-Western refiners.

### Plan Outlined

With Oklahoma-Kansas refiners relieving Mid-Western refiners of a part of their markets, these Indiana-Illinois refiners could divert part of their supplies to the East Coast. These long-haul shipments could be made by rail, it was said.

"It's not quite as simple as it sounds here," one refiner said, "but if they're seeking a means of supplying a possible deficiency on the East Coast, this suggestion might temporarily and partially fill the bill." It would also release for long-haul shipments the tank cars ordinarily tied up on some of the shorter hauls, it was said.

The plan might necessitate a co-ordination committee within the industry to consider the inevitable operating problems sure to crop up, according to one refiner.

In backing up their contentions, it was pointed out that some Kansas refiners ship as much as 90% of their total output of light oils by truck and that their shipping radius extends as far as 500 miles from their refineries. Percentage of truck shipments from all Kansas plants would total considerably less, according to most reports.

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WASHINGTON, July 7. — Public Roads Administration reports a total of 454,426 publicly-owned motor vehicles, including trailers and motorcycles, were in use during 1940. California, with 40,540 vehicles outnumbered other states; New York followed with 38,052; Texas, 27,178; and Ohio, 25,547.

### Truck-Competitive Rates Authorized by ICC

NPN News Bureau

WASHINGTON, July 7.—Establishment of truck-competitive rail rates on gasoline and refined oils in tank cars from producing points in central territory, including Illinois territory, western New York, western Pennsylvania and western West Virginia, to points up to 246 miles distant in central territory, have been authorized by the Interstate Commerce Commission.

New rates range from 0.5c for the first 7 miles and 10c for 98 miles and 25.50c for 246 miles.

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### Rail Cut Deferred

NPN News Bureau

TULSA, July 7.—Action by Texas-Louisiana Freight Bureau on a proposal for reductions of as much as 0.462c per gal. on light oils shipped by rail within the state was deferred for another month.

Scheduled for lengthy consideration and study at its meeting at Galveston, Tex., last week, the Bureau decided to hold the proposal over until Aug. 5 for further consideration. No protests have been filed by petroleum shippers to the reduced scale of rates, according to reports.

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### 25 Gasoline Locomotives Being Used by Army

NPN News Bureau

WASHINGTON, July 7. — Twenty-five gasoline-propelled locomotives already are at work at Army posts and 20 more will be delivered soon, the War Department reports.

These "midget" locomotives, weighing 20 tons each and referred to by the soldiers as "mosquitoes", are, according to the War Department, as easy to run as an automobile, yet can pull 15 loaded freight cars at 15 miles per hour. Their chief value is in rapid handling of tank cars from regular railroad interchange points to gasoline storage tanks and in moving cars containing various supplies around Army warehouse circuits for prompt unloading, Department states.

## ICC Calendar On Oil Trucking

### DECISIONS

**Dixie Truck Line,** (MC-1333); Roy C. James, (MC-2044); J. D. Miller, (MC-4480); Roy L. Jones, (MC-4964); J. A. Wall, (MC-8076); Roy E. Mays, (MC-9145); King & Sons, (MC-10494); Emmett Patterson, (MC-11576); Alex J. Birkmeyer, (MC-11629); A. P. Clay, (MC-20331); M. A. Davis, (MC-27662); W. H. Tobias, (MC-30479); C. R. Talkington, (MC-32361); C. D. Newsom, (MC-34160); Roy L. Easter, (MC-41358); Carl Woodward, (MC-60310); O. F. Bright, (MC-65263); R. D. Williams, (MC-74183); Henry H. Murphy, (MC-76414); E. B. Snipes, (MC-80730); E. P. Gibson, (MC-82731); H. E. Murphy, (MC-87093). Certain applicants found entitled to continue operation as common carriers by motor vehicle, of oil field equipment, over irregular routes from Houston to oil-field locations in Texas and between Houston and oil-field locations in Louisiana; or from Houston to oil-field locations in Texas and between Houston and oil-field locations and Oklahoma, by reason of the fact that they or their predecessors in interest were engaged in such operations on, and such operation has been carried on continuously since June 1, 1935. Issuance of certificates approved upon compliance by applicants with certain conditions, and applications denied in all other respects. Applicant in MC-76414 found to have failed to establish the right to certificate as a common carrier by motor vehicle, of oil-field equipment, between points in Texas under the "grandfather clause" and the application is denied. Applications in MC-10494 and MC-82731 dismissed.

**Zach Brooks,** El Dorado, Ark. (MC-53425, sub-No. 3) Public convenience and necessity found to require operation by applicant as a common carrier by motor vehicle of machinery, materials, supplies and equipment incidental to or used in the construction, development, operation, and maintenance of facilities for the discovery, development and production of natural gas and petroleum, between points in Alabama and Florida and between points in those states on the one hand, and points in Texas, Louisiana, Arkansas, Mississippi, Illinois, Indiana, Kentucky, and Tennessee, on the other, over irregular routes. Issuance of a certificate authorized upon compliance by applicant with certain conditions, and application in all otner respects denied.

**Ewald Schneider,** Hartford, Wis. (MC-92318). Operation by applicant as a contract carrier by motor vehicle of canned goods from Hartford to Chicago, and petroleum products, in containers, on return, over specified routes, found not consistent with the public interest and the national transportation policy. Permit denied.

# '40-'41 Heating Oil Requirements Drop from '39-'40 Winter

HEATING oil consumption per burner installed this past winter (September through May) was less than normal for most of the country, as gauged by temperature deficiency reports from U. S. Weather Bureau stations to NPN. The exceptions were in New England, New York state and points along the upper East Coast.

Compared with the winter of 1939-40, per burner consumption this past season was much less for practically the entire winter belt. In some markets, mainly in the Middle West, requirements were under those of the previous winter by 10% or more.

Of the large heating oil markets of the East consumption in Boston for the entire winter was nearly normal, but 6% under the previous winter. In New York city it was slightly under normal, but 9% less than the previous winter. Requirements in Philadelphia were just those of a normal winter, but nearly 9% under the previous winter. Baltimore and Washington were about 10% under the 1939-40 heating season in consumption per burner installed.

In the Middle West, consumption in the big markets of Chicago and Detroit was about 9% less than the winter before. Points farther west, St. Louis, Kansas City and Omaha, recorded burner requirements from 12 to 15% less than the 1939-40 heating season. The Pacific Coast markets, while more in line with the previous winter in consumptive requirements, were considerably under a normal heating season.

### MAY REQUIREMENTS LIGHT

Heating oil demand was exceptionally light in May. In the East, consumption in Boston was 23% less than that required in a normal May and also under May, 1940, requirements by the same proportion. In New York City demand was 13% less than normal, and 30% less than in the previous May. In Philadelphia burner requirements in May were two-thirds those of a normal May and also of May, 1940.

In Chicago, consumption in May was nearly 40% less than normal and only half that of the previous May. In St. Louis, demand per burner was only 69% of normal for the month and nearly 75% less than in May, 1940. Kansas City showed even greater discrepancies. On the Pacific coast, consumption was more nearly normal, but considerably under May, 1940, except for San Francisco.

The percentages given above, and in the Degree-Day tables on this page, are for the individual burner installed. They do not take into account increases in numbers of burners installed.

## Table 1—May Heating Oil Requirements, in Degree Days

| | May Normal DDs | Actual May 1941 DDs | % Above or Below Normal Needs | Actual May 1940 DDs | % Above or Below May 1940 | % Normal Season's Needs Used in May '41 | % Normal Seasons Needs Used in Normal May | Total DDs in Normal Season |
|---|---|---|---|---|---|---|---|---|
| **NEW ENGLAND** | | | | | | | | |
| Portland, Me. | 329 | 312 | — 5.1 | 385 | —19.0 | 4.5 | 4.7 | 6973 |
| Burlington, Vt. | 263 | 326 | +23.9 | 284 | +14.8 | 4.4 | 3.5 | 7486 |
| Boston | 245 | 199 | —23.1 | 269 | —26.0 | 3.3 | 4.0 | 6058 |
| Providence, R. I. | 233 | 175 | —24.9 | 262 | —33.2 | 3.1 | 4.1 | 5711 |
| Hartford, Conn. | 218 | 199 | — 8.7 | 221 | — 9.9 | 3.3 | 3.6 | 6019 |
| **MIDDLE ATLANTIC** | | | | | | | | |
| New York City | 139 | 121 | —12.9 | 179 | —32.4 | 2.3 | 2.6 | 5290 |
| Albany | 229 | 227 | — 0.8 | 218 | + 4.1 | 3.5 | 3.5 | 6516 |
| Rochester | 248 | 254 | + 2.4 | 243 | + 4.5 | 3.8 | 3.7 | 6620 |
| Buffalo | 324 | 324 | 0 | 370 | —12.4 | 4.8 | 4.8 | 6723 |
| Trenton, N. J. | 120 | 114 | — 5.0 | 149 | —23.5 | 2.2 | 2.3 | 5190 |
| Philadelphia | 122 | 79 | —35.2 | 122 | —35.2 | 1.6 | 2.5 | 4837 |
| **SOUTH ATLANTIC** | | | | | | | | |
| Baltimore | 101 | 61 | —39.6 | 95 | —35.8 | 1.3 | 2.2 | 4628 |
| Washington | 105 | 89 | —15.2 | 95 | — 6.3 | 1.9 | 2.3 | 4620 |
| Richmond, Va. | 82 | 63 | —23.2 | 49 | +28.5 | 1.6 | 1.3 | 3887 |
| **NORTH CENTRAL** | | | | | | | | |
| Cleveland | 221 | 177 | —19.9 | 303 | —41.6 | 2.9 | 3.6 | 6144 |
| Chicago | 280 | 172 | —38.6 | 361 | —52.4 | 2.7 | 4.4 | 6378 |
| Detroit | 217 | 176 | —18.9 | 301 | —41.5 | 2.7 | 3.4 | 6454 |
| Milwaukee | 347 | 243 | —29.9 | 396 | —38.6 | 3.4 | 4.9 | 7117 |
| Minneapolis | 256 | 132 | —48.4 | 298 | —55.7 | 1.7 | 3.2 | 7893 |
| St. Louis | 94 | 29 | —69.1 | 111 | —73.9 | 0.6 | 2.0 | 4658 |
| Des Moines, Ia. | 170 | 69 | —59.4 | 200 | —65.5 | 1.1 | 2.7 | 6329 |
| Omaha | 157 | 60 | —61.8 | 161 | —62.7 | 0.9 | 2.5 | 6229 |
| Kansas City | 110 | 27 | —75.4 | 100 | —73.0 | 0.5 | 2.2 | 5104 |
| Denver | 262 | 158 | —39.7 | 190 | —16.8 | 2.7 | 4.5 | 5787 |
| **PACIFIC COAST** | | | | | | | | |
| Seattle, Wash. | 257 | 240 | — 7.1 | 147 | +63.3 | 5.6 | 5.9 | 4306 |
| Portland, Ore. | 253 | 216 | —14.6 | 112 | +92.8 | 4.9 | 5.9 | 4367 |
| San Francisco | 219 | 151 | —31.0 | 213 | —28.3 | 6.3 | 9.2 | 2382 |

## Table 2—Season's Heating Oil Requirements to June 1, 1941

| | Sept.-May Normal DDs | Actual Sept.-May 1941 DDs | % Above or Below Normal | Actual Sept.-May 1940 DDs | % Above or Below Sept.-May 1940 | % Normal Season's Needs Used in Sept.-May 1941 | % Normal Season's Needs Used in Sept.-May 1940 | Total DDs in Normal Season |
|---|---|---|---|---|---|---|---|---|
| **NEW ENGLAND** | | | | | | | | |
| Portland, Me. | 6973 | 7442 | + 6.7 | 7312 | + 1.7 | 106.7 | 104.8 | 6973 |
| Burlington, Vt. | 7486 | 7987 | + 6.7 | 8398 | — 4.9 | 106.7 | 112.2 | 7486 |
| Boston | 6058 | 5991 | — 1.1 | 6380 | — 6.0 | 98.9 | 105.3 | 6058 |
| Providence, R. I. | 5711 | 5815 | + 1.8 | 6342 | — 8.3 | 101.8 | 111.0 | 5711 |
| Hartford, Conn. | 6019 | 6320 | + 5.0 | 6654 | — 5.0 | 105.0 | 110.5 | 6019 |
| **MIDDLE ATLANTIC** | | | | | | | | |
| New York City | 5290 | 5197 | — 1.8 | 5711 | — 9.0 | 98.2 | 107.9 | 5290 |
| Albany | 6516 | 7098 | + 8.9 | 7632 | — 6.9 | 108.9 | 117.1 | 6516 |
| Rochester | 6620 | 6981 | + 5.4 | 7075 | — 1.3 | 105.4 | 106.9 | 6620 |
| Buffalo | 6723 | 6844 | + 1.8 | 7276 | — 5.9 | 101.8 | 108.2 | 6723 |
| Trenton, N. J. | 5190 | 5302 | + 2.1 | 5767 | —10.0 | 102.1 | 111.1 | 5190 |
| Philadelphia | 4837 | 4840 | 0 | 5297 | — 8.6 | 100.1 | 108.7 | 4837 |
| **SOUTH ATLANTIC** | | | | | | | | |
| Baltimore | 4628 | 4379 | — 5.4 | 4836 | — 9.4 | 94.6 | 104.5 | 4628 |
| Washington | 4620 | 4432 | — 4.1 | 4948 | —10.5 | 95.9 | 107.1 | 4620 |
| Richmond, Va. | 3887 | 4053 | + 4.3 | 4428 | — 8.5 | 104.3 | 113.9 | 3887 |
| **NORTH CENTRAL** | | | | | | | | |
| Cleveland | 6144 | 5870 | — 4.5 | 6461 | — 9.1 | 95.5 | 105.2 | 6144 |
| Chicago | 6378 | 5955 | — 6.6 | 6548 | — 9.1 | 90.9 | 102.7 | 6378 |
| Detroit | 6454 | 6318 | — 2.1 | 6907 | — 8.5 | 97.9 | 107.0 | 6454 |
| Milwaukee | 7117 | 6619 | — 7.0 | 7014 | — 5.6 | 93.0 | 98.5 | 7117 |
| Minneapolis | 7893 | 7443 | — 5.7 | 8008 | — 7.0 | 94.3 | 101.4 | 7893 |
| St. Louis | 4658 | 4319 | — 7.3 | 5091 | —15.1 | 92.7 | 109.3 | 4658 |
| Des Moines, Ia. | 6329 | 5843 | — 7.7 | 6604 | —11.6 | 92.3 | 104.3 | 6329 |
| Omaha | 6229 | 5715 | — 8.4 | 6501 | —12.1 | 91.6 | 104.3 | 6229 |
| Kansas City | 5104 | 4657 | — 8.7 | 5369 | —13.3 | 91.3 | 105.1 | 5104 |
| Denver | 5787 | 5377 | — 7.1 | 5274 | + 1.9 | 92.9 | 91.1 | 5787 |
| **PACIFIC COAST** | | | | | | | | |
| Seattle, Wash. | 4306 | 3444 | —20.0 | 3559 | — 3.2 | 80.0 | 82.7 | 4306 |
| Portland, Ore. | 4367 | 3410 | —21.9 | 3395 | + 0.4 | 78.1 | 77.8 | 4367 |
| San Francisco | 2382 | 1927 | —19.1 | 2006 | — 3.9 | 80.9 | 84.2 | 2382 |

# Defense Needs Spur Lake Tankers To Biggest Oil Shipping Season

**Refinery and terminal of Gulf Refining Co. on Maumee River, Toledo, Ohio. Extensive Illinois crude shipments in 1940, from this port, made it the second largest in volume on the Great Lakes. Indiana Harbor was the first**

IN the spring of 1941, the race between the oil companies shipping on the Great Lakes, to see whose tankers would get out first with loads of gasoline, fuel oil and crude, meant more than setting a record in an informal sports event.

The Standard of Ohio's "Panoil" nosed through the ice cakes in a channel partially cleared by 2 larger vessels, and docked in Cleveland April 2, after a trip from Toledo. This was 10 days ahead of the normal opening of tanker navigation on the lakes. That early opening enabled some of the vessels of the oil company fleet to make 2 extra trips thus far this season; 3 for some vessels on short runs. The cargoes moved on these extra trips, amounting to several hundred thousand barrels, will help materially in meeting an oil shipping demand this season that will tax the capacities of all the Great Lakes tankers and barges.

In 1940, the volume of crude and products moved on the Great Lakes was 46,337,650 bbls., according to data compiled by NPN from the reports of the 5 district U. S. Engineer offices on the lakes. This increase was more than had been anticipated. The volume moved in 1940 was 30% larger than the 35,759,570 bbls. moved on the Great Lakes waterways in 1939.

Oil shipping men who were shown the 1940 figures whistled as they realized the work the oil company fleet has cut out for it this season. It must supply the oil terminals on the lakes with enough gasoline and fuel oil, and other products, to meet the demands from 6 states bordering on the Great Lakes, large parts of which are feeling the impetus of the defense boom; it must move crude from Toledo to some of the refineries located at lake ports, it may have to help move cargoes through the New York Barge Canal to the East Coast, to aid in relieving the anticipated shortage there, due to the government's withdrawal from coastwise service the tankers which had been bringing crude and products up from the Gulf Coast. Lake shipments are being speeded up now, so as to have cargo space later, if possible, for the shipments to the East Coast from plants in the Great Lakes section.

The fleet of around 40 tankers and barges of the American oil companies operating on the lakes is estimated to have capacity to move around 42,000,000 bbls. in a normal season, on normal routes. The additional cargo space which was necessary to move over 46,000,000 bbls. last season was supplied by the tankers of Canadian oil companies, which moved most of the 9,000,000 bbls. shipped from Toledo to Toronto, Montreal and other Canadian points.

THE capacity of the Great Lakes vessels under the American flag is flexible, as some barges and smaller tankers are used in both lakes service and in the East Coast trade. At present there are said to be around 43 U. S. vessels on the lakes, with a cargo capacity for around 925,000 bbls. of gasoline, as reported by the fact-finding committee of the American Petroleum Institute, in its recent study of means for relieving the anticipated oil shortage on the East Coast. It is estimated that the average round trip haul on the Great Lakes takes close to 5 days; thus the fleet has a capacity to move around 185,000 bbls.

a day of gasoline, or over 42,000,000 bbls. over the open season. This capacity is reduced by 15 to 20% when crude or fuel oil is transported in place of the lighter gasoline. There are around 30 vessels in the Canadian fleet, only a few of which are in service moving crude and products from Toledo.

AN accompanying table shows the tankers of the Great Lakes fleet, and their capacities, as reported by the A. P. I. fact-finding committee. Of the total, it is estimated that 27 of the smaller vessels, with a combined capacity of 431,500 bbls., could be moved through the barge canal, to operate on the East Coast in an emergency.

That the Great Lakes fleet was operating at close to capacity in 1940 is indicated by the data in accompanying tables, showing receipts of crude and refined products at U. S. lake ports and domestic and export shipments from 6 ports. The table showing receipts includes all ports receiving any quantity of petroleum by water. The total shown is over 41,000,000 bbls., as compared with 38,800,000 bbls. in 1939. Included in this total are a few million barrels of gasoline and fuel oil which are shipped to these points from refineries outside the lakes, via the Illinois River Waterway and by the N. Y. Barge Canal.

The Illinois River Waterway connects the Mississippi River with the Great Lakes at Chicago. Shell Oil Co. and Socony-Vacuum ship by barge over this route to serve points on the lakes. Gasoline and fuel oil for the eastern end of the Great Lakes normally moves in by way of the barge canal.

Of the total 1940 shipments from the 6 lakes ports, 46,337,650 bbls., are made up of 10,593,620 bbls. of exports to Canada and 35,744,030 bbls. of domestic business, the great volume of the latter going to lake ports and small amounts moving to points on the barge canal. Exports to Canada were principally crude and some fuel oil. But little crude figured in domestic shipments.

The table of shipments shows the great growth of Toledo as an oil shipping port. In 1940, over 17,500,000 bbls. of crude and products were moved by tanker and barge from this port, well over twice the movement in 1939. Toledo harbor now ranks second to Whiting in the volume of oil shipped. Of the total 1940 shipments from this port, 8,926,600 bbls. were crude, of which 7,886,700 bbls. went to Canada, 893,800 bbls. in domestic lakewise shipments and 146,110 bbls. shipped out via the N. Y. Barge Canal.

SOME of the crude exported by water from Toledo went to the Sarnia, Ont., plant of Imperial Oil Co., Ltd., but the large part moved through the Welland Canal to Canadian plants on Lake Ontario and the St. Lawrence river. The Canadian Dominion Bureau of Statistics reported 7,658,900 bbls. of crude and fuel oil moved through the Welland Canal in 1940 and 784,145 bbls. of gasoline. In 1939, this movement totaled 2,274,100 bbls. of crude and fuel oil and 497,980 bbls. of gasoline.

The greatly increased shipments of crude from Toledo in 1940 were made possible by the enlargement of the branch line of the Buckeye Pipe Line Co. from Lima, Ohio, to Toledo, to handle 100,000 bbls. of Illinois crude a day. This movement is continuing at the present rate this season, according to the Standard of Ohio and the Pure Oil Co., who with the Allied Oil Co., Inc., of Cleveland, are the

## Great Lake Terminals which Handle Petroleum Products

## Tankers Under the American Flag On the Great Lakes in 1941

*(As reported to the Office of Production Management at Washington by the fact-finding committee of American Petroleum Institute)*

| Owner or Agent | | Gasoline Capacity Bbls. |
|---|---|---|
| **Standard Oil (Ind.)** | | |
| Red Crown | Stmr | 66,682 |
| Edward G. Seubert | Stmr | 50,723 |
| Robert W. Stewart | Stmr | 50,542 |
| William P. Cowan | Stmr | 63,170 |
| Beaumont Parks | Stmr | 43,788 |
| Barge "C" | Barge | 41,876 |
| **Cleveland Tankers, Inc. (Allied Oil Co., Inc.)** | | |
| General Markham | Stmr | 23,000* |
| Comet | Stmr | 36,000 |
| Mercury | Diesel | 22,000* |
| Zephyr | Diesel | 18,000* |
| Crudoil | Stmr | 15,000* |
| Cleveco | Barge | 22,000* |
| **Great Lakes Transport. (Standard of Ohio, Pure Oil, Fuel Oil Corp. of Detroit)** | | |
| Panoil | Stmr | 18,000* |
| Mexoil | Stmr | 18,000* |
| Fueloil | Barge | 5,000* |
| **Pure Oil Co.** | | |
| L. S. Wescoat | Stmr | 38,000 |
| **Socony Vacuum** | | |
| Traverse City Socony | Diesel | 28,000 |
| New Haven Socony | Diesel | 12,000* |
| **Lake Tankers Corp. (Shell Oil Co.)** | | |
| Martha E. Allen | Diesel | 32,500 |
| Justine C. Allen | Diesel | 10,500* |
| Irene W. Allen | Diesel | 10,500* |
| **Gulf Oil Corp.** | | |
| Paratex | Diesel | 15,000* |
| Regent | Diesel | 12,000* |
| **The Texas Co.** | | |
| Maine | Stmr | 42,000 |
| **Spentonbush Fuel Transport** | | |
| Hygrade 16 | Barge | 23,000* |
| Hygrade 18 | Barge | 17,300* |
| Dumont | Diesel | 13,000* |
| Hygrade 10 | Barge | 15,000* |
| Hygrade 14 | Barge | 14,200* |
| **Oil Transfer Corp.** | | |
| OT 25 | Barge | 14,000* |
| OT 26 | Barge | 14,000* |
| OT 30 | Barge | 19,000* |
| **Seaboard** | | |
| Seaboard 99 | Barge | 17,000* |
| **American Pet. Trans.** | | |
| Transoil | Diesel | 19,000* |
| **Poling-Russell** | | |
| Russell 23 | Barge | 19,000* |
| Russell 22 | Barge | 19,000* |
| **O'Boyle, Inc.** | | |
| Catherine O'Boyle | Barge | 13,500* |
| Klondyke | Barge | 13,500* |
| | | 924,781 |

*Can be taken out of lakes —Total ..... 431,500

# *Measure the merit of "6-wheelers"*

• There's a better, BIGGER way to get your product where you want it at lower cost . . . Timken 6-Wheel Tandem Axle Units! Whether you're buying trailer units like the one above, or tank trucks, insist on Timken "6-Wheelers" when you buy.

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Measure the merit of "6-Wheelers"! Ask your truck dealer about Timken factory-installed 6-Wheel Tandem Axle Units before you buy.

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# TIMKEN

**FACTORY-INSTALLED TANDEM AXLE UNITS**

## Receipts of Crude and Refined Oil Products at U. S. Lakes Ports*

**From Data in U. S. Engineer's Office, Washington****

| Port | 1940 Bbls. | 1939 Bbls. | 1938 Bbls. |
|---|---|---|---|
| Duluth-Superior | 6,249,850 | 6,229,800 | 4,676,000 |
| Gladstone, Mich. | 189,100 | 103,500 | 33,300 |
| Sault Ste. Marie | 103,860 | 96,400 | ..... |
| Green Bay, Wis. | 2,268,990 | 2,121,770 | 2,023,000 |
| Milwaukee | 2,504,270 | 969,750 | 361,000 |
| Chicago | 1,537,400 | 1,198,600 | 1,085,000 |
| Indiana Harbor | 1,892,120 | 1,894,050 | 1,872,000 |
| St. Joseph, Mich. | 661,800 | 628,000 | 554,000 |
| Holland, Mich. | 229,300 | 211,020 | 145,700 |
| Grand Haven, Mich. | 659,900 | 310,100 | ..... |
| Muskegon, Mich. | 2,356,810 | 2,279,200 | 2,332,000 |
| Traverse City, Mich. | 236,380 | 225,660 | 231,000 |
| Cheboygan, Mich. | 61,810 | 51,640 | 5,800 |
| Alpena, Mich. | 40,580 | 34,270 | 34,000 |
| Saginaw River Ports | 2,898,500 | 2,648,800 | 2,685,000 |
| Port Huron, Mich. | 100,670 | 139,020 | 134,000 |
| Detroit | 7,901,340 | 8,184,000 | 7,799,000 |
| Toledo | ..... | 998,300 | 1,092,000 |
| Lorain, O. | 160,400 | 247,900 | 241,000 |
| Cleveland | 5,170,000 | 5,273,000 | 5,394,250 |
| Erie, Pa. | 434,370 | 94,400 | 73,000 |
| Buffalo | 4,808,070 | 4,366,700 | 3,540,000 |
| Sackets Harbor, N. Y. | 113,660 | 116,420 | 104,840 |
| Ogdensburg, N. Y. | 444,180 | 360,850 | 369,740 |
| Total Receipts Above Ports | 41,023,360 | 38,783,150 | 34,785,630 |

* Included in receipts at some ports are gasoline and fuel oil originating at refineries outside the Great Lakes district and shipped in via the Illinois Waterway and the N. Y. Barge Canal.

** Reports of shippers to the U. S. Engineer's offices are in short tons. In reducing tons to bbls., the following factors have been used: 7.7 bbls. of gasoline to the ton, 7 bbls. of kerosine and 6.7 bbls. of crude and fuel oils.

principal shippers of Illinois crude in the export trade.

A summary of oil shipments and receipts at principal lake ports follows, showing the changes in 1940 from the year preceding.

### TOLEDO

This port, with its increased refining facilities, now imports no crude or oil products by water. In 1939 and 1938, around 1,000,000 bbls. of refined products in each case, were shipped there from other refining centers on the lakes principally Cleveland.

Of about 4,270,000 bbls. of fuel oil shipped out by water in 1940, 851,000 bbls. went to Canada and 3,418,800 to U. S. ports. Relatively small amounts of gasoline were shipped out; 378,000 bbls. to Canada and 3,751,800 in the domestic trade.

### INDIANA HARBOR

From this shipping point for Whiting and East Chicago refining districts, nearly 23,500,000 bbls. of crude and products moved out by water in 1940. Of this, nearly 19,740,000 bbls. were gasoline and all but about 100,000 bbls., which was exported to Canada, was domestic trade. Crude shipments were 706,000 bbls., mostly to Canada, and this was only half the volume of crude shipped in 1939.

Receipts were 1,892,000 bbls., about the same volume in 1939, most of it gasoline coming in via the Illinois waterway for Mid-Continent refiners maintaining distribution depots in East Chicago.

### CHICAGO

Receipts of 1,537,400 bbls. were nearly 30% larger than in 1939. They included 918,000 bbls. of gasoline and 547,100 bbls. of fuel oil received via the Illinois waterway. Lakewise receipts were only 63,770 bbls.

### DETROIT (including Trenton and River Rouge)

Receipts were about the same in volume as in 1939. Of the total, 7,166,450 bbls. was lakewise, 159,440 via the Illinois Waterway to the lakes and 575,450 via the N. Y. Barge Canal. Of lakewise receipts, 1,622,500 bbls. were fuel oil for the terminals at River Rouge, 5,296,750 bbls. of gasoline for River Rouge and 110,130 bbls. of lubricating oils for Trenton, where the refinery of the White Star-Ohio division of Socony-Vacuum Oil Co. is located.

Of receipts via the barge canal, 419,600 bbls. were gasoline for River Rouge and 70,000 bbls. lubricants for Trenton.

Of 123,470 bbls. of oil exported from the port of Detroit, 91,150 bbls. were fuel oil shipped from Trenton and 31,270 bbls. gasoline shipped from River Rouge.

### CLEVELAND

Exported to Canada 371,500 bbls. of gasoline in 1940; no export shipments in 1939 or 1938. Movement to U. S. lake ports was 205,200 bbls. about 1,000,000 bbls. less than in 1939 and reflecting the dropping in shipments of refined products by Standard of Ohio to Toledo.

Lakewise receipts were slightly under those of 1939, consisting of about 4,000,000 bbls. of gasoline and 1,100,000 bbls. of fuel oils. Of these receipts, 63,400 bbls. came in via the Illinois Waterway and the barge canal.

### BUFFALO (including Buffalo Harbor, Black Rock Lock and Niagara River)

Exports to Canada, 48,910 bbls. of gasoline, were a large drop from 577,300 bbls. shipped in 1939.

Domestic shipments were 2,444,100 bbls., nearly 1,000,000 bbls. larger than

(*Continued on page* 38)

## Shipments of Crude and Refined Oil Products* From U. S. Ports on Great Lakes (1938-40)

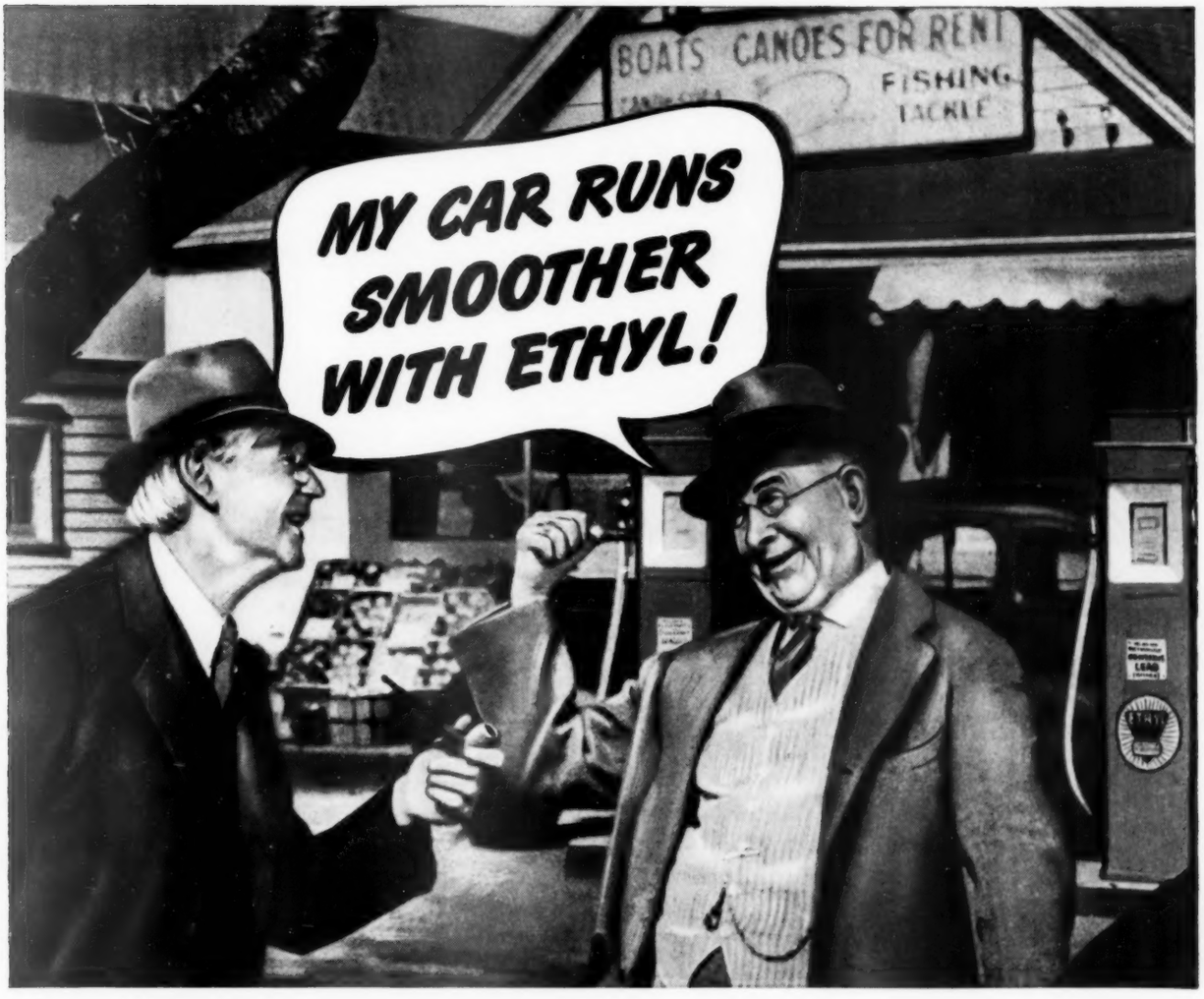
**(Data from U. S. Engineer's Office, Washington)**

| Port | 1940 Bbls. | 1939 Bbls. | 1938 Bbls. |
|---|---|---|---|
| **Indiana Harbor** | | | |
| Exports to Canada | 932,300 | 1,426,900 | 673,700 |
| Domestic Shipments | 22,557,280 | 21,275,320 | 19,009,000 |
| **Toledo** | | | |
| Exports to Canada | 9,117,440 | 1,784,860 | 420,180 |
| Domestic Shipments | 8,415,820 | 5,611,800 | 6,512,250 |
| **Detroit** | | | |
| Exports to Canada | 123,470 | 52,350 | ..... |
| Domestic Shipments | 1,369,450 | 987,200 | 370,374 |
| **Cleveland** | | | |
| Exports to Canada | 371,500 | ..... | ..... |
| Domestic Shipments | 205,200 | 1,211,100 | 2,411,000 |
| **Saginaw River** | | | |
| Exports to Canada | ..... | 45,900 | 533,700 |
| Domestic Shipments | 752,170 | 1,227,100 | 1,202,610 |
| **Buffalo** | | | |
| Exports to Canada | 48,910 | 577,300 | 99,800 |
| Domestic Shipments | 2,444,110 | 1,559,740 | 1,157,100 |
| Total, exports to Canada | 10,593,620 | 3,887,310 | 1,727,380 |
| Total, domestic shipments | 35,744,030 | 31,872,260 | 30,662,334 |
| Total, crude & refined | 46,337,650 | 35,759,570 | 32,389,714 |

* Reports of shippers to the U. S. Engineer district offices are in short tons. The following factors have been used in reducing tons to bbls: 7.7 bbls. of gasoline to the ton, 7 bbls. of kerosine and 6.7 bbls. of crude and fuel oils.

# QUALITY TALKS!

**The people who buy your quality gasoline are the ones who *enjoy* getting peak performance and power out of their cars. They know that Ethyl means a cooler-running engine in summer, extra power the whole year through. And they're the first to pass the good word along to other car owners—help *you* sell your best gasoline. For instance, you'll often hear them say:**




More and more people are using Ethyl every day, because they're learning that modern high compression engines give their *best* performance with high anti-knock gasoline. In fact, many car dealers and service men are advising *their* customers to buy *your* best gasoline—explaining that Ethyl permits setting the ignition timing for more power without "knock."

* * *

Ethyl Gasoline Corporation, Chrysler Bldg., New York City.

***SELL FROM THE PUMP WITH THE ETHYL EMBLEM—***

# FLASH!

# OBI ANNOUNCES PLAN TO MEET INDUSTRY EMERGENCY

### Newspaper Campaign to Establish Importance of Oil Burners in Defense Effort

### *Defense Emergency Committee Pledges Oil Burner And Allied Industries To WAR ON WASTE*

### SAVINGS EQUIVALENT TO FREEING 10 TANKERS FOR FULL YEAR

★

## DEALERS ENTHUSIASTIC

### 5000 PLEDGE COOPERATION

Responding to the first advertisement in the trade press, which gave the bare outlines of a program to meet the fuel oil emergency through increasing the efficiency of present oil burner installations, dealers of the Oil Burner and Allied Industries have swamped OBI headquarters with pledges of support.

Backed by this enthusiastic reception, committees appointed for the job have plunged into the work of developing and starting a definite program. Dealer sales helps are scheduled to go on the presses within a few days and will be available through manufacturers of the Oil Burner, Fuel Oil, Insulation and allied fields.

### Consumer Program To Sell Defense Reconditioning Gets Under Way At New York Meeting

As this magazine goes to press dealers and manufacturers are meeting in New York to consider and approve a complete consumer-education program that has been developed.

This program includes heavy newspaper schedules in areas where oil shortages have been predicted, designed to show the home owner that he can be sure of plenty of oil and save himself money, by having his oil burner DEFENSE ECONOMY tested and brought up to Commercial Standard (CS-75-39).

Program also includes dealer manuals, display, selling helps, direct mail and other material for making the plan effective.

*Our Battle Flag for Conservation*

# IT'S YOUR PROGRAM READ HOW YOU CAN HELP

## IF YOU ARE A MANUFACTURER

Whether you make Oil Burners, Controls, Regulators, Accessories or such heat conservation materials as storm sash, weather stripping, or insulation products—this is your program.

We can help you—and we need your help.

If you want details of the WAR ON WASTE advertising and sales promotion plan, wire OBI headquarters, Room 1837, RCA Building, N. Y. (or phone CIrcle 7-4137) and complete information will be supplied. Remember, this campaign is ready to go. All we need to make it effective is the active support of the members of the industry. When you receive a request to attend a meeting or cooperate in other ways, please place it first on your list.

Conservation is the American way. Help us make it effective.

## IF YOU ARE A DEALER

No matter whether you sell Oil Burners, Oil Controls or Insulating equipment, you help preserve your country and an industry which contributes to its greatness, when you aid oil conservation through more efficient burning.

Make up your mind now to bring every one of your customers' burners up to CS-75-39. Complete sales helps to aid in selling your customers on reconditioning now being prepared.

If you don't have the equipment to do it, contact your source of supply immediately, or arrange with other dealers in your association to pool existing equipment. This is urgent.

Complete details of WAR ON WASTE advertising plan will be made available through your manufacturer, or local dealer association as soon as manuals can be printed.

**IMPORTANT**

We must have the assured support of the industry. Uncle Sam needs your cooperation in conserving vital transportation space. If you plan to sell DEFENSE RECONDITIONING, please let us know.

**MAIL TODAY**

*PLEDGE*

**Oil Burner Industry**
**Emergency Committee on National Defense**
**of Oil Burner Institute**
**Room 1837, RCA Building, New York, N. Y.**

YES! I'll cooperate in the WAR ON WASTE.

Name.....

Address.....

If dealer, please give number of burners you serve.....
Also manufacturer whom you would expect to supply you with tie-in material for the Campaign.

.....

# Tractor Manufacturers Help Oil Companies Sell Premium Quality Products to Farmers

With rising demand for greater amounts of gasoline on the farm, "gas" tanks and pumps are being installed on some of the larger farms

Wiping out the air cleaner cup with a clean cloth. This should be done once a day where the tractor is operating under average conditions; several times a day in extreme dust conditions

TRACTOR manufacturers are helping oil companies sell farmers the best quality of fuel and lubricants these days, not only for the farmers' tractors but also for their passenger cars and trucks.

The day was, especially when farm equipment was horse-drawn, that the farmer was considered a "cheap" market, a market to be appealed to with low price and where the quality did not matter. Mail order business was for years pitched on a low price and cheap merchandise appeal. Most stuff sold the farmer generally looked as if the low price prevailed.

As a result the farmer was educated to look for and expect low price goods to serve his wants.

But the coming of the modern internal combustion engine on the farm and particularly in tractor and truck as well as passenger car, has made it just as necessary to sell the farmer on quality products as the owner of the same kind of machinery in shop and factory in town.

Today, the tractor manufacturers are strongly urging the farmer to buy good quality oil products. They are telling the farmer to make sure that he gets such quality, to buy from established oil companies, and then to make doubly sure the farmer follows this injunction the tractor makers set forth quite detailed specifications — that can be met by all quality oil products—in the manuals they issue with each tractor. These manuals are most specific as to the grade of products, both for the newer high compression type tractors and also for their models. In many instances, they now give octane rating of the gasoline which will give best performance, or the specifications for the distillate for the models using heavier fuels.

The manuals give the SAE grades of crankcase oils and transmission and other lubricants and classify them by temperature brackets. This is the same practice as followed in specifying lubricants for passenger cars.

For the aid of oil marketing companies, NPN has collected all this data from all the tractor manufacturers and compiled it in table form with this story. This table also shows the capacities of crankcase and transmission as well as grades of fuel and lubricants. Data for 53 models of tractors by manufacturers is given. This data is reprinted in suitable form for use by salesmen to be given or sold to stations and garages and the details of how an oil company can get such reprints from NPN are told in a box with the tables.

Manufacturers point out that in recent years farm tractors have gone through the same stages of improved engineering as have passenger cars.

"In the improved types of tractors sold today, the engines may run over 100 lbs. brake mean effective pressure, as against 65 to 70 lbs. some years ago," states one tractor engineer. "As with automobile engines, in supplying this additional power, bearing pressures, piston speeds and cylinder temperatures have increased." However, this engineer went on to say that, because of this finer engineering, if proper attention is given to the fuels and lubricants used and to a few common points of servicing, the need for overhauls, repairs and adjustments will be much less than with earlier models.

Illustrating the importance of cleaning the air filter. For every 10 gals. of fuel, the average tractor consumes enough air to fill two 90-ton silos. Since the air is mixed with fuel it must be clean, as well as the fuel

Calling tractor owners' attention to the value of using superior quality oil products in his equipment, is a part of oil companies' program to sell the farm oil market oil supplies for his passenger car and truck and other mechanical needs.

Aside from advising the use of recommended grades of quality fuels and lubricants, current manufacturers' manuals call the farmer's attention to the following points, to help him maintain his tractor in efficient operating condition:

1—Store and handle fuel and lubricants in clean containers, so that no dirt is introduced into the tractor engine from this source. The oil com-

# UNDER THAT SIGN-

## You'll find a greater profit opportunity

As a Cities Service Dealer, I say that from my own experience. Perhaps you fill your quota for gasolene, motor oil and other routine products just as easily as I do. But what about your extra-profit items? Chances are it's like pulling teeth for you to make a half-way decent showing on them. Yet that's where the real money lies—and that's where the Cities Service Dealer really gets a break.

For, you see, besides producing standard products of superior quality, Cities Service has developed certain unique and exclusive products, and special services that really sell—and sell for keeps. My customers come back time and time again for features such as Cisco Solvent, Sealed Lubrication and the Power Prover, to name only a few. They are proved money-makers—every one of them. The proof? That's easy—it's right here in the profit columns of my ledger.

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Address.....

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panies, as well as the tractor makers, advise the use of tight drums for storing gasoline and keeping them under cover, to prevent evaporation and to keep gum from forming. It is also important that the lubricating oils and greases be kept in tight containers, to prevent contamination from dirt, and that funnels and dippers and grease guns be kept clean.

2—Frequent inspection of the air cleaner and oil filter on the tractor, to keep dust and chaff from getting into the engine.

3—Importance of the use of the right type of spark plug. What is known as a "hot" plug is used where distillate is burned and a "cold" plug where gasoline is used. The former type of plug has a longer insulator, which retains heat to burn off the carbon resulting from using a heavy fuel; the latter type, a short insulator to remove heat rapidly. Most manuals are specific as to the type of plug and the exact width of gap between electrodes is specified.

4—Using clean water in the tractor radiator. It is stated that clean rain water or soft well water be used, if it is available—never water taken from an open tank or the watering trough for the stock. Many tractor troubles are said to originate from scale formed in the radiator passages. Where hard water is used, regular treatment with washing soda is recommended to remove the scale accumulation before it is heavy enough to clog passages.

Following is more detailed data on fuels and lubricants and other points of tractor servicing, as taken from the current operator's manuals:

### TRACTOR FUELS

Where tractor engines are designed to burn gasoline, most manuals call for a motor fuel of 70-72 octane number, or the same grade that the farmer is using in his passenger car. For

## Lubricants For Farm Tractors, As Recommended by Their Manufacturers

*Except where differences are shown, same grades of lubricants noted for transmissions are used in differentials, final drives, and rear axle and steering gear housings.*

| | Make and Model | Crankcase: Over 90F. | Crankcase: 90F. to 32F. | Crankcase: 32 to 10 F. | Crankcase: 10F. to —10F. | Transmission: Above 32 | Transmission: Below 32 | Differential: Above 32 | Differential: Below 32 | Final Drive: Above 32 | Final Drive: Below 32 | Air Cleaner | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SAE Grades | | | | SAE Grades | | SAE Grades | | SAE Grades | | | |
| 1 | Allis-Chalmers B, 1B | 30 | 20 | 20W | 10W | 140 | 90 | ... | .. | 140 | 90 | ..... | 1 |
| 2 | Allis-Chalmers C | 30 | 20 | 20W | 10W | 30 | 30 | ... | .. | 140 | 90 | ..... | 2 |
| 3 | Allis-Chalmers RC | 30 | 20 | 20W | 10W | 140 | 90 | 140 | 90 | 250 | 140 | Same | 3 |
| 4 | Allis-Chalmers WC | 40 | 30 | 20W | 10W | 140 | 90 | 140 | 90 | 250 | 140 | Viscosity | 4 |
| 5 | Allis-Chalmers WF | 40 | 30 | 20W | 10W | 140 | 90 | 140 | 90 | 250 | 140 | as in | 5 |
| 6 | Allis-Chalmers V | 40 | 30 | 20W | 10W | 140 | 90 | ... | .. | ... | .. | Crankcase | 6 |
| 7 | Allis-Chalmers VC | 40 | 30 | 20W | 10W | 140 | 90 | ... | .. | 140 | 90 | ..... | 7 |
| 8 | Case V, VC, VI, VO | 30 | 20 | 10 | 10 | 140 | 90 | ... | .. | ... | .. | Not over 30 | 8 |
| 9 | Case S, SC | 30 | 20 | 20W | 10W | 140 | 90 | ... | .. | ... | .. | in summer for | 9 |
| 10 | Case D | 30 | 20 | 20W | 10W | 140 | 90 | ... | .. | ... | .. | V and S Models | 10 |
| 11 | Case DC | 30 | 20 | 10 | 10 | 160 | 90 | ... | .. | ... | .. | 10 for others, | 11 |
| 12 | Case L, LA | 30 | 20 | 20W | 10W | 140 | 90 | ... | .. | ... | .. | ..... | 12 |
| 13 | Case R, RC | 30 | 20 | 20W | 10W | 140 | 90 | ... | .. | ... | .. | 10W in Winter for all | 13 |
| 14 | Cleveland Tractor GG | 30 | 30 | 20W | 10W | 60† | 40‡ | 30§ | ... | .. | 60† | 40‡ 30§ | 10W 14 |

†Above 70F., ‡70F. to 32, §below 32F.

| | | | | | | Above 32 | Below 32 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | Ford Ferguson | 30 | 20 | 20W | 10W | 90 (14 qts. 90 & 6 qts. 10W) | | .. | .. | ... | | Same as in Crankcase | 15 |

| | | | | | | Over 90 | 90 to 50 | 50 to 20 | Below 20 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | International Harvester | | | | | | | | | | | | |
| 16 | Int. Farmall A | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | Same as in Crankcase | 16 |
| 17 | Int. Farmall B | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 17 |
| 18 | Int. Farmall H | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 18 |
| 19 | Int. Farmall M | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 19 |
| 20 | Int. Farmall F 12 | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 20 |
| 21 | Int. Farmall F 14 | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 21 |
| 22 | Int. Farmall F 20 | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 22 |
| 23 | Int. Farmall F 30 | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 23 |
| 24 | International W-4 | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 24 |
| 25 | International W-6 | 30 | 20 | 20W | 10W | 250 | 140 | 90 | (*) | | | ..... | 25 |
| 26 | International O-4 | 30 | 20 | 20 | 10W | 250 | 140 | 90 | (*) | | | ..... | 26 |
| 27 | International O-6 | 30 | 20 | 20 | 10W | 250 | 140 | 90 | (*) | | | ..... | 27 |
| | (All Models, kerosine or distillate operation) | 40 | 30 | 20 | 20W | | | | | | | | |

*(4 parts 90, 1 part kerosine)

| | | | | | | Above 32 | Below 32 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | J. Deere A, AN, ANH, AW, AWH | 50 | 30 | 20W | 10W | 140 | 90 | | | | | Same as in Crankcase | 28 |
| 29 | John Deere AR, AO | 50 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 29 |
| 30 | J. Deere B, BN, BNH, BW, BWH | 50 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 30 |
| 31 | J. Deere BO, BR, BI | 50 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 31 |
| 32 | John Deere, Model D | 50 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 32 |
| 33 | John Deere, Model G | 50 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 33 |
| 34 | John Deere, Models H, HN | 50 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 34 |

(For all models SAE 40 crankcase oil recommended from 65 F to 90; 50 above 90)

| | | | | | | | | Above 32 | Below 32 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | Huber Model B | 40 | 30 | 30 | 20 | 140 | 90 | 140 | 90 | | | ..... 35 |
| 36 | Huber L and LC | 40 | 30 | 30 | 20 | 140 | 90 | 140 | 90 | | | ..... 36 |
| 37 | Huber HS and HK | 50 | 40 | 40 | 30 | 140 | 90 | 140 | 90 | | | ..... 37 |
| 38 | Massey-Harris 81 | 30 | 30 | 20 | 10W | 140 | (*) | | | | | ..... 38 |
| 39 | Massey-Harris 101 Jr. | 30 | 30 | 20 | 10W | 140 | (*) | | | | | Same as in Crankcase 39 |
| 40 | Massey-Harris 101 S | 30 | 30 | 20 | 10 | 90 | 90 | | | | | ..... 40 |
| 41 | Massey-Harris 101 RC | 30 | 30 | 20 | 10 | 90 | 90 | | | | | ..... 41 |
| 42 | Massey-Harris 201 | 30 | 30 | 20 | 10 | 140 | (**) | | | | | ..... 42 |

*(90 thinned by adding low Vis. low cold test engine oil.)
**(140 thinned by adding 1.5 gals. kerosine.)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | Minneapolis-Moline RT | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 43 |
| 44 | Minneapolis-Moline Z | 30 | 30 | 20W | 10W | 140 | 90 | | | | | Same as in Crankcase | 44 |
| 45 | Minneapolis-Moline UTS | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 45 |
| 46 | Minneapolis-Moline G | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 46 |
| 47 | Oliver 60 Series | 30 | 30 | 20W | 10W | 140 | 90 | | | | | Same as in Crankcase | 47 |
| 48 | Oliver 70 Series | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 48 |
| 49 | Oliver 80 Series | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 49 |
| 50 | Oliver 90 Series | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 50 |
| 51 | Oliver 99 Series | 30 | 30 | 20W | 10W | 140 | 90 | | | | | ..... | 51 |

| | | | | | | | | Above 32 | Below 32 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | Silver King, prior to '38 | 30 | 30 | 20W | 10W | 140 | 90 | 140 | 90 | 20 summer | 52 |
| 53 | Silver King, after '38 (Above 85F use SAE 40) | 30 | 30 | 20W | 10W | 140 | 90 | 140 | 90 | 10W winter | 53 |

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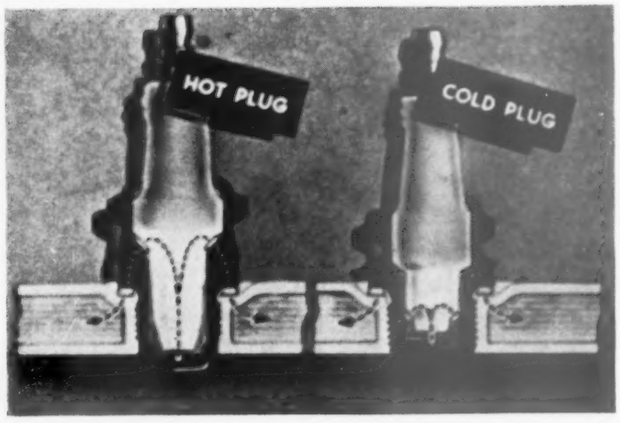
# CHEVROLET TRUCKS

## *"THRIFT-CARRIERS FOR THE NATION"*




Types of spark plugs for tractors depend on the fuel used. The "hot" plug, left, is designed with a longer insulator, to retain heat and thus burn off sooty, carbon deposits, which result from the use of heavy fuels. The "cold" type plug, right, has a short insulator which removes heat rapidly to the cooling water and should be used where gasoline is burned

distillate fuel, the general recommendation is for a product of not over 525 F. end point; and 35-40 octane number. On fuels generally, J. I. Case Co. says:

"It is important that the right kind of fuels be used. Not only must the fuel used be to certain specifications, but it must be clean fuel. The best fuel will give trouble if it contains dirt, or foreign ingredients or water. It is always important to purchase fuel from reliable established oil companies, as they take precautions to supply fuels that are made to certain specifications and so maintained.

"It is poor economy to purchase gasoline on price alone. Not only is

## Farm Wheel Tractor Capacities, and Fuels Recommended by Their Manufacturers

*Included are models using gasoline, distillate, or kerosine for fuel, Crawler and diesel tractors not included*

| | Make and Model | Crank-case Quarts | Trans-mission Quarts | Differ-ential* Quarts | Final* Drive, Pints Per Unit | Fuel Tank Gallons | Cooling System Quarts | Fuels Recommended By Manufacturers | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Allis-Chalmers B, 1 B | 4 | 6 | .. | 1.5 | 12 | 8 | Engines furnished in 2 compression ratios. | 1 |
| 2 | Allis-Chalmers C | 4 | 6 | .. | 1.5 | 13 | 8 | High-compression uses 60 octane gasoline or | 2 |
| 3 | Allis-Chalmers RC | 4 | 4 | 6 | 1 | 12 | 8 | higher for regular loads; 70 octane for con- | 3 |
| 4 | Allis-Chalmers WC | 6 | 4 | 6 | 1 | 15 | 16 | tinued heavy load. Low Compression: For | 4 |
| 5 | Allis-Chalmers WF | 6 | 4 | 6 | 1.25 | 15 | 16 | smaller models, 60 octane gasoline or higher, | 5 |
| 6 | Allis-Chalmers V | 10 | 48 | .. | .. | 24 | 24 | or distillate of following specs: Gravity, 38 | 6 |
| 7 | Allis-Chalmers VC | 10 | 48 | .. | 4 | 24 | 24 | or higher; end point 525F. or less; octane rating 30 or more. For larger models, dist. only recommended. | 7 |
| 8 | Case V, VC, VI, VO | 4 | 28 | | | 10 | 12 | V series operates best on 72 gasoline, satis- | 8 |
| 9 | Case S, SC | 5 | 36 | | | 14 | 16 | factorily on grades as low as 57. | 9 |
| 10 | Case D | 7 | 36 | | | 17 | 27 | Standard S series, regular gasoline 65 oc- | 10 |
| 11 | Case DC | 7 | 42 | | | 18 | 20 | tane or higher. With special equipment, dist. | 11 |
| 12 | Case L, LA | 12 | 68 | | | 29 | 60 | of 37-38 gr.; 505-510 F.e.p.; 35-40 octane. | 12 |
| 13 | Case R, RC | 5 | 36 | | | 14 | 16 | Other models, have adjustable manifold for gasoline or distillate. | 13 |
| 14 | Cleveland Tractor GG | 5 | 10 | | 3 | 12 | 11 | For standard tractor, "good grade" of gasoline recommended. Special equipment available for kerosine. | 14 |
| 15 | Ford Ferguson | 6 | 20 | | | 9 | 14 | Gasoline only | 15 |
| | International Harvester | | | | | | | | |
| 16 | Int. Farmall A | 5 | 6 | | 3 | 10 | 14 | A and B Models, standard design, use gaso- | 16 |
| 17 | Int. Farmall B | 5 | 6 | | 3 | 10 | 14 | line, special equipment optional for distillate | 17 |
| 18 | Int. Farmall H | 6 | 24 | | | 17.5 | 16 | or kerosine. | 18 |
| 19 | Int. Farmall M | 8 | 64 | | | 22 | 24 | | 19 |
| 20 | Int. Farmall F 12 | 5.5 | 16 | | | 12 | 14 | Other models provide in design for distillate, | 20 |
| 21 | Int. Farmall F-14 | 5.5 | 16 | | | 13 | 14 | kerosine or gasoline engine. Gasoline of | 21 |
| 22 | Int. Farmall F-20 | 7 | 32 | | 4 | 13 | 29 | 70-72 octane number recommended; 36-40 | 22 |
| 23 | Int. Farmall F 30 | 7 | 28 | | 4 | 21 | 40 | octane dist. | 23 |
| 24 | International W-4 | 6 | 26 | | | 17.5 | 18 | | 24 |
| 25 | International W-6 | 8 | 56 | | | 21 | 24 | | 25 |
| 26 | International O-4 | 6 | 26 | | | 17.5 | 18 | | 26 |
| 27 | International O-6 | 8 | 56 | | | 21 | 24 | | 27 |
| 28 | John Deere A, AN, ANH, AW, AWH | 9.5 | 32 | | | 15 | 37 | In all models, "engine burns gasoline, kero- | 28 |
| 29 | John Deere AR, AO | 9.5 | 32 | | | 16 | 32 | sine, distillate, good grade furnace oil." | 29 |
| 30 | John Deere, B, BN, BNH, BW, BWH | 7.5 | 18 | | | 12 | 25 | "In nearly all communities," state manuals | 30 |
| 31 | J. Deere BO, BR, BI | 7.5 | 18 | | | 12 | 24 | "these heavy fuels are commonly used be- | 31 |
| 32 | John Deere, Model D | 13 | 28 | | | 23.5 | 56 | cause of their lower cost and because they | 32 |
| 33 | John Deere, Model G | 11 | 36 | | | 17 | 44 | burn well and without any more detrimental | 33 |
| 34 | John Deere, Models H, HN | 4.5 | 11 | | | 7.5 | 22 | effect than gasoline or kerosine." | 34 |
| 35 | Huber Model B | 5 | 5 | 3.5 | 2⅝ | 16 | 13 | Gasoline-Ker.-Dist. | 35 |
| 36 | Huber L and LC | 9 | 16.5 | .. | 4 | 20 | 16 | Gasoline-Ker.-Dist. | 36 |
| 37 | Huber HS and HK | 14 | 47.5 | .. | .. | 32 | 11 | Gasoline-Ker.-Dist. | 37 |
| 38 | Massey-Harris 81 | 4 | 24 | .. | | 12 | 11 | | 38 |
| 39 | Massey-Harris 101 Jr. | 4 | 24 | .. | | 10 | 11 | Standard in all models is high-compression | 39 |
| 40 | Massey-Harris 101-S | 5 | 24 | .. | | 15 | 18 | engine, 68-70 octane gasoline recommended | 40 |
| 41 | Massey-Harris 101 RC | 5 | 24 | .. | | 18 | 18 | for fuel. Optional is engine to run on kero- | 41 |
| 42 | Massey-Harris 201 | 5 | 64 | .. | | 25 | 18 | sine or distillate. | 42 |
| 43 | Minneapolis-Moline RT | 7 | 18 | | | 14 | 18 | Standard fuel for RT model is 70 octane or | 43 |
| 44 | Minneapolis-Moline Z | 7 | 28 | | | 16.75 | 18 | better gasoline. Low compression cylinder | 44 |
| 45 | Minneapolis-Moline VTS | 9 | 52 | | | 21.5 | 24 | head optional for dist. or kerosine. Other | 45 |
| 46 | Minneapolis-Moline G | 10 | 52 | | | 30 | 28 | models have adjustable heater manifold for using gasoline, or kerosine, or distillate. | 46 |
| 47 | Oliver 60 Series | 4 | 24 | | | 10 | 10 | Series 60 designed for 70-72 gasoline. | 47 |
| 48 | Oliver 70 Series | 5 | 26 | | | 15 | 18 | Series 70 and 80 have HC engine for 70-72 | 48 |
| 49 | Oliver 80 Series | 8 | 48 | | | 17 | 34 | gasoline, or KD engine for 30 octane dist., | 49 |
| 50 | Oliver 90 Series | 12 | 48 | | | 34 | 42 | not over 525 F.e.p. Series 90 and 99 have | 50 |
| 51 | Oliver 99 Series | 12 | 48 | | | 34 | 42 | adjustable manifold for gasoline or dist. | 51 |
| 52 | Silver King, prior to '38 | 3 | 10 | | 3 | 8.75 | 9.5 | Regular automobile grade gasoline, with | 52 |
| 53 | Silver King, after '38 | 5 | 12 | | 3 | 12.75 | 11.5 | minimum octane rating of 70. | 53 |

*Differential and final drive capacity is included with transmission on many models.

# WHAT IS THIS SYSTEM CALLED PETINCO

Petinco (Petroleum Inventory Control) is the most revolutionary, simple and practical system ever devised to help oil companies and jobbers cut delivery costs . . . build good-will . . . and increase gallonage! Petinco is a token-operated system that makes the retail gasoline pump the dominant factor in controlling purchases by the service station. It is a time tried, field-tested system that has emphatically proved its ability to build profits by cutting costs. It is a system that is rapidly revolutionizing present methods of delivering petroleum products to the service station—a system designed to make the "Iowa Plan" work! So many are the benefits of Petinco that every marketing executive should investigate it—NOW!

## PETINCO HOW DOES PETINCO OPERATE?

Operation of Petinco is simplicity itself. The unit, illustrated above, is mounted on the outside of the pump and connected to the pump motor circuit and the meter drive shaft. The dealer inserts a fifty-gallon token (nine can be inserted) purchased at current prices from the wholesaler and bearing its own individual design. Periodically, the truck driver removes the expended tokens from the lock box, for which only he has the key, counts them, and replaces the stock by that amount. The storage stock remains the property of the wholesaler—title to the dealer passing only when and in the quantity represented by the tokens inserted. Costly and frequent truck deliveries, and unnecessary credit risks, are thus eliminated.

## WHAT ARE IT'S *Advantages?*

- Eliminates frequent, small deliveries.
- Avoids unnecessary credit losses and costs.
- Minimizes number of bulk plants required.
- Improves relations with dealers.
- Eliminates loss of sales to bootleg truckers.
- Assures public of receiving the product advertised.
- Removes dealer incentive to short-measure.
- Simplifies accounting and bulk plant operation.
- Eliminates rebates for shrinkage, etc.
- Eliminates paying high commission rates in lower rate zones.
- Reduces risk of drivers handling cash.
- Increases storage facilities without extra cost.

## *How* CAN I GET COMPLETE FACTS?

Complete facts about the Petinco System can be obtained by writing, telegraphing or phoning to S. F. Bowser & Co., Inc., Fort Wayne, Indiana.

BOWSER ESTABLISHED 1885

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FORT WAYNE, INDIANA

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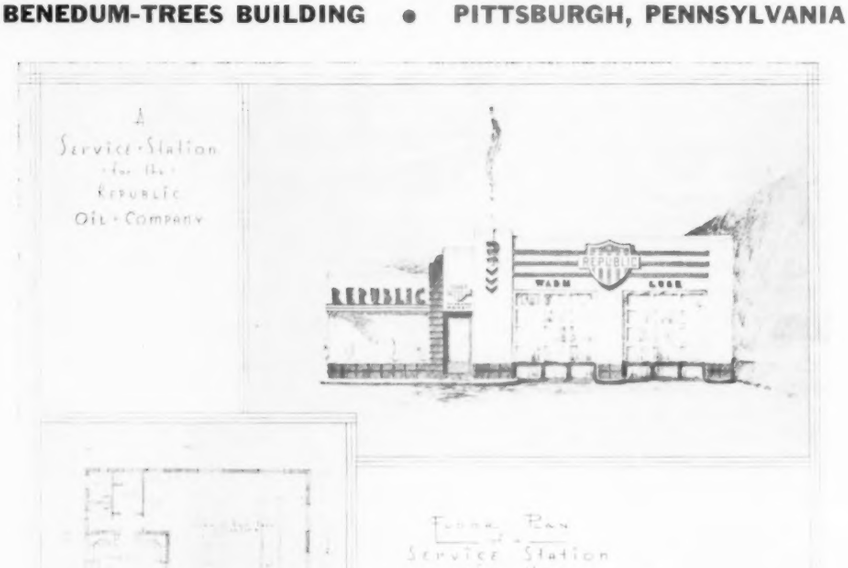


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the octane rating likely to be low, resulting in knocking and rough operation, but gum-forming substances and foreign matter are likely to cause trouble. Purchase your gasoline from a reliable oil company. A gasoline that gives good results in your automobile will operate very well in your tractor.

"Occasionally it may be desired to burn gasoline in tractors equipped for low cost fuel. On short runs, light load work, or in cold weather, gasoline may give better results."

### CRANKCASE OIL

Regular, and in many cases more frequent, changes of engine oil and the use of the proper grade for the season, is now recommended by all tractor manufacturers. In the newer automotive-type models, changes every 60 working hours are advised by several companies—and more frequently if the tractor is working in dust and extreme heat. In but few cases do the manuals advise running more than 120 hours without a complete drain and then only if there is an oil filter and it is functioning properly. Some manuals say the period between oil changes can be extended 10 working hours or more, if gasoline is burned instead of distillate.

General advice in the manuals is to check the crankcase oil every 10 hours and add new oil if necessary to bring to the proper level.

As to the grade of engine oil, all manufacturers now use the temperature brackets adopted by the Society of Automotive Engineers and the oil companies for passenger cars. These brackets are: above 90F., from 90 to 32F., from 32 to 10F and from 10 above zero to 10 below. The SAE grades recommended for these brackets in most cases are the same as for most present model passenger cars: 30, 20, 20W and 10W, respectively. In a few cases, SAE 40 is recommended for above 90F., and for few models, SAE 50. Regarding the use of lighter grade oils in modern tractors, John Deere Tractor Co. says in its manual:

"It is frequently found that men connected with the tractor and oil business believe that a good tractor oil must have a heavy body. This erroneous belief was founded on experience with oil when tractor construction was crude and the proper function of an engine lubricant was not well understood."

The manual goes on to say that the fit between pistons and cylinders, piston rings and piston ring grooves, connecting rod and crankshaft and crankshaft and main bearings is as close as in modern automobiles, where light or medium bodied oils are recommended. "When good oil of proper weight is used, the first few revolutions of the crankcase cause the oil to circulate throughout the engine, completely coating all working parts," it states.

"When a heavy body oil is used

**Here's another of Continental Can Company's full page, FULL COLOR ads designed to promote products that come in cans and boost business for our customers. This timely advertisement appears in the July 5th issue of the Saturday Evening Post in support of the oil industry. Free reprints may be had for the asking.**

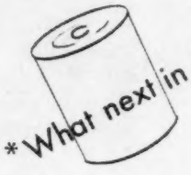
## A GOOD POINTER FOR A SAFE "FOURTH"!

▶ According to reliable statistics, 2,687,372 of you Post readers own automobiles. And (according to equally reliable statistics) 2,687,372 of you will be driving places over the Fourth.

So here's a pointer. The *first* place to drive to is your service station. Make sure your trip is safe and enjoyable by having dirty, worn oil drained out of your car, and fresh, clean oil put in.

Thanks to motor oil in refinery-sealed cans, you'll get the exact brand and grade you pay for. And you'll get it in a container which keeps it free from dust, dirt and air Enjoy a safe Fourth — and safe motoring!

*Motor Oil — one of the many good things you buy in cans* ✻




**To the motorist** of nine years ago, motor oil in refinery-sealed cans was a new idea. Today cans are the accepted "package"—and Continental leads in producing them for the motor-oil industry. Grease, hypoid lubricants and polishing wax are packed in cans, too, for your protection and convenience. What next? You'll find the answer in laboratories such as Continental's, where trained research men are busy every day on the packaging problems of industry. If there's any packaging problem in your business, here's a good place to bring it. Write to Continental Can Company, 100 East 42nd Street, N.Y.C. Fifty offices and plants in the U.S.A., Canada and Cuba.

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where medium or light oil is required, proper lubrication does not start until the engine has operated long enough to thin the oil either by heat or fuel dilution, so that it can penetrate the small clearances through which it must flow. During the time oil is diluting, wear is occurring, although the effect of it may not be fully apparent until the tractor has been used for some time."

Insistence on high quality oils is uniformly advised by the tractor manufacturers. The farmer can protect himself in this regard, the manuals say, by buying from established oil companies, known to handle good grades of lubricants and by not buying on price only.

"Use only the best grades of lubricating oils in the engine," says the Oliver Farm Equipment Co. "Do not judge the quality of an oil by its price. A great deal of engine trouble can be traced directly to the use of oils and greases not suitable for tractor lubrication. The importance of good, clean lubrication cannot be overestimated."

Importance of using good oil and changing according to instructions is also emphasized by the Minneapolis-Moline Power Implement Co. Its manual says on these points:

"A cold engine put under a load, or a poorly adjusted carburetor, causes unburned fuel to pass into the crankcase and results in diluted or thinned out crankcase oil. An excessive amount of dilution will completely destroy the lubricating value of the oil.

"Poor oil becomes gummy under high temperatures, causing piston rings to stick in their grooves and valves to become sticky, so that they work slowly.

"This gummy condition is the result of the oil under high temperature combining chemically with the oxygen in the air in the crankcase, and is known as oxidation, which is a form of sludge.

"Another kind of sludge forms in cold weather, when water which condenses in the crankcase mixes with dirty oil and forms a sticky, dirty mess.

"All of these gummy conditions can be prevented by using nothing but a good grade of lubricating oil, changed in accordance with instructions and by keeping the engine hot so as to prevent condensation."

"Low priced oils are seldom economical. They may be very costly in the long run," states the Deere tractor company.

### OIL FILTER

Replacing the oil filter, or filter element, when the oil begins to darken in color, is the general advice. Manufacturers who recommend 120 to 150 hours between oil changes say the filter should be changed then and several manuals advice changing the filter at the same time as the oil is changed. It is generally recognized that a longer time can elapse before replacing the filter when gasoline is used in the tractor, than when distillate is burned.

"The oil filter must be cleaned regularly, to prevent a heavy coating of sludge forming in the filtering element, to the extent the oil cannot pass through it," says the Minneapolis-Moline manual. "When this occurs, the oil passes through a safety valve back into the engine without being cleaned. Sludge and carbon deposits are then forced through the working parts of the engine, causing unnecessary wear."

On importance of cleaning the oil filter, the tractor manual of the Standard Oil Co. of Indiana states: "When heavy loads or extremely dusty operating conditions are encountered, it may be necessary to clean the oil filter element once a day. The amount of deposit which accumulates on the element before clogging will vary with different viscosities of oil, with different degrees of dilution, different types of oil, different spring tension on the by-pass valve and with different mechanical conditions of the engine.

"Because moisture condensation from the products of combustion es-


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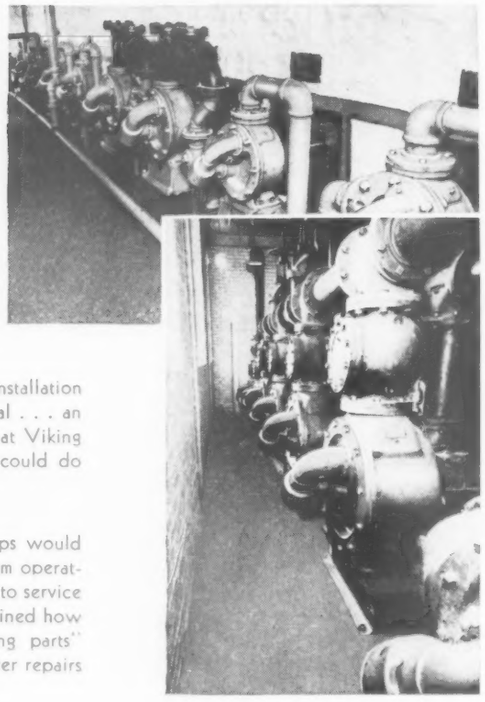

The top photograph shows the original installation we made in a large eastern oil terminal . . . an installation sold on the promise of what Viking Pumps had done for others, what it could do for them.

We told them that Viking Rotary Pumps would perform smoothly and quietly at minimum operating expense . . . that Viking was easier to service and required less servicing. We explained how Viking's principle of "only 2 moving parts" meant longer pump life, less wear, fewer repairs and replacements.

They tried Viking... they found out for themselves what has been proved in hundreds of oil terminals the world over—that for the handling of petroleum products, Viking has no equal. The bottom photograph pictures the repeat order they asked us to install.

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The complete cost of "Tidewater Method" of warehousing will amount to about 11 to 18 cents per 1,000 gallons. Your bank loan will be about 5%. These costs may vary slightly depending upon the volume of oil or gas warehoused and financed during any one season. With the ability to make quantity purchases while prices are low, and with ample stocks to sell when prices become high, your added earnings will quickly wipe out all costs and leave you a substantial profit.

You know that prices may advance sharply at any time. You have been warned against slow deliveries . . . increased fuel demands by industry, army and navy, and a host of other disturbing elements, which can materially affect your profits.

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**Your own bank will help you.** And generously . . . as much as 80% to 85% of the laid down cost . . . when financing is done through the "Tidewater Method" of Field Warehousing. Terms are liberal. Your collateral will not be "tied up" for the fuel may be delivered to customers as orders come in . . . and your loan liquidated as sales are made.

It's all very simple. There is nothing complicated about "Tidewater Method" of Field Warehousing. You are relieved of detail. Your system of doing business will not be disturbed. Your interests will be fully protected. There are no disadvantages whatever, but the *benefits to you are real and tangible.*

Get all the facts at once. A post card written by you today will bring you full particulars by return mail.

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# PUMPS
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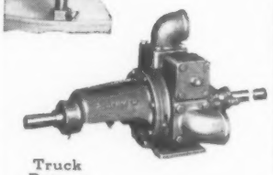
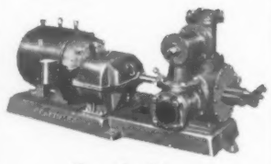
*Write for Bulletin No. UB320*

Hand Pumps 54 models.



Truck Pumps all sizes.



Transfer Pumps 5 to 700 GPM. Single or multiple.

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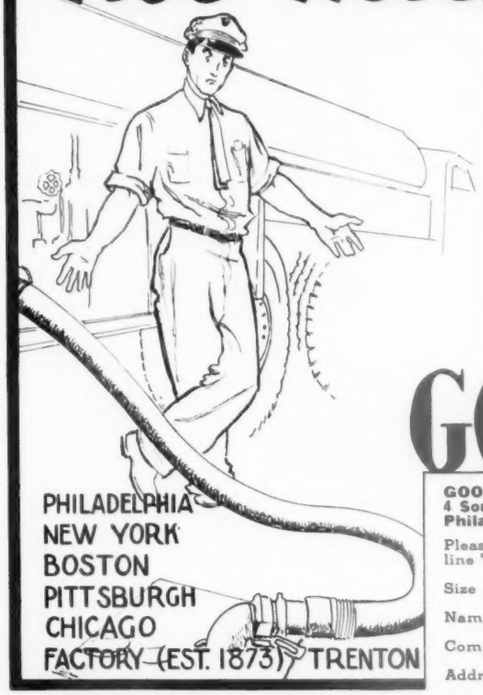

"Can't I ever get away from these stations as fast as some of my buddies on the other trucks? . . . This hose is so slow you'd think I was delivering molasses instead of gas! . . . It makes my record look bad to be held up so long at each stop . . . It keeps business away from the Station, too, because I'm bottle-neckin' the driveway . . . I'm glad they tried Goodall Gasoline Delivery Hose on some of the other trucks . . . Now, the boss is gradually changing over all the trucks to Goodall hose . . . That's the best hose we ever had . . . It's easy to handle, it lasts a long time, and it gives 'all-out' delivery, even when it gets old . . . Mr. Reader, if you haven't looked into this Goodall recently you ought to send that coupon in right now!"

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Company .....

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caping to the crankcase is greater in cold weather, tending to form emulsions with the oil and other impurities, it is a good idea to check the filter frequently at such times to keep it free of the sludge-like accumulation."

### TRANSMISSIONS

Many manufacturers now advise a change of transmission, differential and final drive lubricants in tractors twice a year and they recommend grades to use for above 32F and below 32; in most cases SAE 140 for above freezing and SAE 90 for below. If the tractor is to be used only a small amount in the winter, thinning with a 10W oil, or with kerosine, to a lighter consistency is recommended by some manufacturers. In this event, a complete drain and change of lubricant in the spring is advised. Checking the transmission lubricant every 30 to 60 hours is recommended.

Necessity for high quality lubricants in tractor transmissions is emphasized as follows in the instructions to tractor owners of the Pure Oil Co.:

"Most tractors are idle hours or days at a time. During these idle periods, if the oil drips entirely off the gears, leaving them without a protective coating, needless wear will result when the tractor is put in gear again and the gears make the first revolution. More wear and damage may result from that first revolution than from the entire day's work, unless an oil with the proper adhesive qualities has been used.

"Using the proper lubricant is only part of the job. Dust and dirt will find their way into the gear cases and they should be drained, flushed and refilled twice a year, regardless of the hours of use of the tractor."

Indiana Standard's manual also calls attention to proper transmission and differential lubrication, stating: "Lubrication of the transmission, differential and final-drive unit is probably the most neglected of any part of the tractor because it seems to operate so well without any special care or attention.

"Ball and roller bearings are largely used in these units on modern tractors, hence the lubricant must be well refined and free from materials that would not be safe in the lubrication of such bearings. The lubricant must have 2 qualities: sufficient body to sustain the sudden, high pressure loads transmitted to gear teeth to protect them against metal-to-metal contact and (2) be sufficiently fluid not to channel or impose undue drag on the motion of the parts, and flow in ample supply to the bearings which support the gear shafts."

### AIR CLEANERS

An extremely important part in tractor maintenance is regular care of the oil bath cleaner which filters

the air going to the carburetor. Manual of the Oliver Farm Equipment Co., referring to one of its models, states: "When the tractor engine is running at full load (1500 R. P. M.), over 3100 cu. ft. of air passes through the carburetor into the cylinders each hour. The dirt contained in that amount of air on a dry, dusty, day could ruin the engine in a short time, were it not for the oil-washed air cleaner removing the dirt."

Instructions call for cleaning the oil cup on the filter and refilling it daily—in extremely dusty operations, twice daily. The oil bath holds not less than 0.5 pt. and over a season the oil for this use is a factor in the operation of the tractor. Removal and cleaning of the entire assembly, air intake cap and screen every 50 to 100 working hours is advised if the tractor is operating in atmosphere laden with dust or chaff. Connections to the carburetor should be checked regularly, to make sure that outside dirt does not get into the engine by this means.

Most manufacturers recommend that fresh oil of the same viscosity as for the crankcase be used in the air filter. Used crankcase oil should not be placed in the filter, most manufacturers' manuals and oil companies say, because such oil, upon losing its dilution by evaporation, may become too thick to serve properly in the filter. Besides, such oil already contains dirt and carbonaceous material and hastens the time the servicing of the filter will be necessary again.

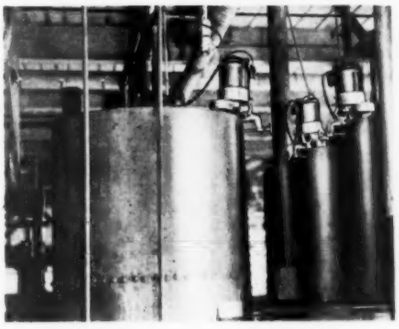
### SPARK PLUGS

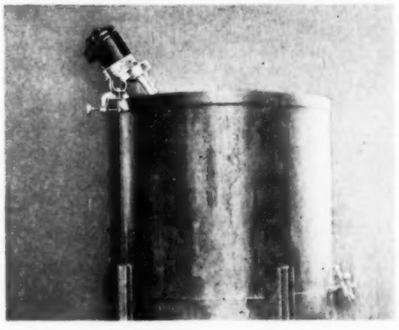
Use of different fuels in the same model of tractors make it important that the proper type of plug be used. A plug that is satisfactory with kerosine or distillate may be found too hot for the same motor, should the owner decide to use gasoline. The tractor requires the correct plug heat range for the type of fuel used. In tractors powered with semi-diesel engines, an automobile type spark plug would not only prove unsatisfactory, but might damage the engine, it is said.

A hot type plug, for use with heavy fuels, is purposely designed with a larger insulator to retain heat and burn off sooty, carbon deposits which result from the use of heavy fuels. A cold type plug, similar to that in an automobile engine, has a short insulator which removes heat rapidly to the cooling water. This type plug is for tractors operating on gasoline.

Blistered or cracked insulators and rapid electrode wear indicate the need for a cooler plug; while constant fouling with sooty carbon deposits indicates need for a hotter plug. Type of plug and exact width of gap between electrodes is specified in most manuals and it is important that this be maintained, manuals state.


# ARE YOU PREPARED TO MEET POSSIBLE SHORTAGES ?





WHAT lies ahead — What volume of what oils will be available—What factors may arise to dislocate supply or affect demand — Nobody knows.

But just because of this uncertainty, we find that some farsighted firms are ordering "LIGHTNIN" Mixers to be prepared to bridge the possible gap in grades by blending and mixing available stocks to customers' demands. Today, these plants are ready and able to blend stocks that previously had always been bought to formulae.

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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION


## Big 1941 Season Seen For Lake Tankers

(*Continued from page* 22)

in 1939. Lakewise movement included 566,340 bbls. of gasoline, and 306,190 bbls. of fuel oil; shipment via Black Rock Lock and Niagara River (passageway to the barge canal) included 942,940 bbls. of gasoline and 628,630 bbls. of fuel oil.

Total receipts were 4,808,100 bbls., of which 3,182,850 bbls. were lakewise and 1,625,220 via the Niagara River. Of the total, about 2,000,000 bbls. were gasoline, and 1,864,000 bbls. fuel oil.

**SAGINAW RIVER PORTS (including Saginaw, Milwaukee, Bay City, Bangor Township, Carrolton, Essexville)**

Shipments declined from 1939. No exports to Canada were reported and no crude was shipped, while in 1939 632,690 bbls. of crude were shipped out. Of 1940 shipments, 441,740 bbls. were fuel oil.

Receipts were a little larger than 1939, mostly lakewise, but 231,590 bbls. via the Illinois Waterway. Most of it was gasoline.

**MUSKEGON, MICH.**

Included in receipts of 2,356,810 bbls. in 1940 was 71,703 bbls. of crude for a refinery there; rest was principally gasoline.

Lakewise shipments were 287,140 bbls., of which 168,440 bbls. were gasoline, rest fuel oil and kerosine. Shipments in 1939 were 357,390 bbls., of which 276,670 bbls. were fuel oil.

**MILWAUKEE**

Receipts in 1940 were more than double those of 1939, due to the putting into operation of the new terminal of the Wadhams Division of Socony Vacuum Oil Co. of nearly 200,000 bbls. capacity. Of the 1940 receipts, 1,846,300 bbls. were gasoline lakewise and 210,710 bbls. via the Illinois Waterway; 377,330 bbls. were fuel oil.

**GREEN BAY, WIS.**

Shell Oil Co. put up 1 tank of about 40,000 bbls. capacity in 1940. Receipts were somewhat larger than 1939 and were principally gasoline.

**GRAND HAVEN, MICH.**

Receipts in 1940 were double those of 1939 and were entirely gasoline, 471,750 bbls. being lakewise movement and 188,160 via the Illinois Waterway.

**ERIE, PA.**

Receipts were over 4 times as large as 1939, made up of 167,400 bbls. of gasoline and 247,420 bbls. of fuel oil. Allied Oil Co., Inc., installed a fuel oil storage depot here in 1940.

# MARKETS

## California

LOS ANGELES, July 5.—A widening of the range of quotations for cargoes of all grades of gasoline was reported by Pacific Coast suppliers the past week. Quotations reported by refiners were: 375 e.p. blend, 70 octane, 5.875 to 6.375c; 390 e.p. blend, 68 octane, 5.75 to 6.25c; 400 e.p. blend, 65 octane, 5.5 to 6c, and U. S. Motor, 60 octane minimum, 5.375 to 5.875c.

Firmness in quotations on both the export and domestic markets was considered a reflection of the continued increase of domestic demand for motor fuel. Preliminary estimates of June gasoline consumption indicated that all previous records were broken as to quantity for any single month and also as to percentage of gain over same month in previous year.

Rack prices of third grade gasoline were reported advanced 0.125c at a majority of independent plants in the Los Angeles Basin, bringing the range to 6-6.75c.

## Gulf

NEW YORK, July 5. Heavy inquiry for most refined products and open spot sales of gasoline and kerosine resulted in increased prices at the Gulf the week ended July 5, according to reports here and from the Southwest.

Low quotations reported for min. 80 oct. (research) gasoline advanced 0.5c during the week to 6.25c, while 72-74 oct. (ASTM) was reported up 0.125c to 5.875c.

Early in the week, an 80 to 100 thousand-bbl. cargo of 80 oct. (CFR) was reported sold at 6c for July lifting. Sale of 130,000 bbls. of min. 74.5 oct. (ASTM) for mid-July lifting, coastwise, was reported at 5.875c and was said to be part of a 400,000-bbl. purchase, balance of which was min. 80 oct. (research) at 6c, according to the report. Subsequent sale of 80,000 bbls., of 74.5 oct. for July lifting, coastwise was reported at 6c.

Kerosine and No. 2 fuel were reported 0.125c higher at 3.5. Sale on July 1 of "approximately 100,000 bbls." of kerosine for mid-July lifting, coastwise, was reported at 3.5c.

Gas oils were priced 0.25 to 0.5c higher, with up to 52 diesel index reported at 3.5c, 53-57 d.i. at 3.75c, and 58 and above d.i. at 3.875c. Inquiries for 100,000 bbls. of the 43-47 d.i. grade for July, coastwise, and 400,000 bbls. of the 48 d.i. grade for lifting over the next 3 months, "coastwise as far as is known," were reported.

Inquiries totalling approximately 760,000 bbls. of min. 80 oct. gasoline, 670,000 bbls. of kerosine, 360,000 bbls. of No. 2 fuel, and 410,000 bbls. of Bunker "C" oil were reported in the market as the week ended.

## Atlantic Coast

NEW YORK, July 5. Quotations for refined products along the Atlantic seaboard were reported generally unchanged the past week, with suppliers continuing to report heavy demand for most products.

Changes of 0.025 to 0.275c in both highs and lows of price ranges for gasoline and kerosine were effected when one supplier reported revising his method of quoting from a fractional system to one based on "tenths".

Advance of 10c to $1.45 per bbl. in his quotations for No. 6 and Bunker "C" fuel was reported by a New York supplier. Tank car lots of this grade were said to have been sold recently at $1.50, New York, but details could not be learned. Open spot quotations reported by most suppliers were unchanged at $1.35.

Supplier of kerosine and Nos. 2 and 3 fuel oils at New York said he was withdrawing from the market since he had "nothing to sell open spot" and was supplying contract customers only.

## Pennsylvania

CLEVELAND, July 5.—Western Pennsylvania lube prices continued to push forward with demand heavy, according to reports of refiners during the short holiday week. Dark stocks were up 0.5c, and low prices reported for bright stock and neutrals were up 1c.

Quotations reported by refiners for 25 pour test oils ranged from 31 to 38c for 200 vis. neutral, 29 to 33c for 150 vis. neutral and 23 to 25c for bright stock. One refiner reported sale of bright stock to another refiner at 23c. All neutral oil quotations reported by refiners were for limited sale to regular jobber and compounder customers.

Sale of 36-40 fuel oil was reported by a lower field refiner at 5.75c. Low quotations reported by other refiners were up 0.125c to 5.625c.

## Mid-Continent

TULSA, July 3.—Prices for gasoline were 0.125 to 0.15c higher in Oklahoma the past week, according to reports of refiners. Call was said to be heavy and supplies "tight", with harvest demand reported brisk in many districts. Some refiners said they were behind on shipments due to "slowing down" of empty tank car returns as well as heavy demand.

Quotations reported for gasoline by Oklahoma refiners ranged from 6.5 to 7.25c for 80-82 oct. Ethyl, 6 to 6.3c for 72-74 oct., 5.625 to 5.9c for 63-66 oct. and 5.25 to 5.5c for 60 oct. & below.

Sales of 20 cars 60 oct. & below gasoline inter-refinery were reported by Kansas refiner. Prices were not disclosed. Purchase of 150 cars 72-74 oct. at "low of market, date of shipment" was reported by Oklahoma refiner. Several inter-refinery inquiries were reported for 60 oct. & below; 2 refiners said they were unable to secure supplies.

Brisk call for lubes also was reported. Most inquiries were said to be for "what you have to offer." One refiner said he had refused offer of 19c from another refiner for low pour 150-160 vis D bright in order to conserve supplies for his regular customers.

## Mid-Western

CHICAGO, July 5.—Holiday demand for gasoline the past week was reported "extremely heavy" by refiners and tank car marketers in Chicago. "This will be the biggest July 4th yet," one refiner commented.

Quotations for all grades of gasoline were reported higher with refiners quoting from 6 to 6.25c for 72-74 oct., 5.5 to 5.875 for 63-66 oct., 5.1 to 5.5c for 60 oct. & below, and one refiner reported quoting 7.2c for 80-82 oct. Ethyl, FOB Group 3.

Group 3 quotations reported by marketers ranged from 6.125 to 6.5c for 80-82 oct. Ethyl, 5.625 to 6c for 72-74 oct., 4.75 to 5.25c for 63-66 oct., and 4.625 to 5.125c for 60 oct. & below.

Open spot sales reported during the week by 3 marketers were 4 cars 80-82 oct. Ethyl at 6.25c; 10 cars 72-74 oct., 8 cars at 5.75c, and 2 cars at 6c; 2 cars 60 oct. & below at 5.25c; and 6 cars 41-43 kerosine, 2 cars at 3.625c, and 4 cars at 3.75c, FOB Group 3.

Group 3 quotations reported by refiners ranged from 4.375 to 4.75c for 41-43 kerosine, while marketers reported quoting 3.625 to 4.125c.

# REFINERY and SEABOARD PRICES

## In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

**(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)**

### HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

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The subscriber receives this information for his private use and not for resale or further distribution.

Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "Inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test: and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

***SPECIAL CONDITIONS ON PRICES—Due to great demand, refiners in nearly all territories and on the most desired products are quoting prices and limiting sales to regular customers only, with varying definitions for such customers. Refiners report refusing to accept higher prices bid by new and casual customers. OILGRAM in its tables is showing only actual sales prices and prices asked by refiners. Bid prices, that do not become sales, are, when learned, reported in the news leads.***

## Summary of Daily Gasoline Prices (July 1 to July 7)

| U. S. Motor, (ASTM octane) | Monday July 7 | Thursday July 3 | Wednesday July 2 | Tuesday July 1 |
|---|---|---|---|---|
| **80-82 octane Ethyl:** | | | | |
| Oklahoma | 6.5 – 7.25 | 6.5 – 7.25 | 6.5 – 7.25 | 6.5 – 7.25 |
| Mid-Western (Group 3 basis) | 7.2 (1) | 7.2 (1) | 7.2 (1) | 7.2 (1) |
| N. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 7 (2) | 7 (2) | 7 (2) | 7 (2) |
| W. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 7.125 (1) | 7.125 (1) | 7.125 (1) | 7 (1) |
| **72-74 octane:** | | | | |
| Oklahoma | 6 – 6.375 | 6 – 6.3 | 6 – 6.3 | 5.875 – 6.3 |
| Mid-Western (Group 3 basis) | 6 – 6.375 | 6 – 6.25 | 6 – 6.2 | 5.875 – 6.2 |
| N. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 5.875 – 6.375 | 5.875 – 6.375 | 5.875 – 6.375 | 5.875 – 6.375 |
| W. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 6 – 6.3 | 6 – 6.3 | 6 – 6.3 | 6 – 6.3 |
| **63-66 octane:** | | | | |
| Oklahoma | 5.625 – 6 | 5.625 – 5.9 | 5.625 – 5.9 | 5.5 – 5.9 |
| Mid-Western (Group 3 basis) | 5.6 – 6 | 5.5 – 5.875 | 5.5 – 5.8 | 5.5 – 5.8 |
| N. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 5.5 – 6 | 5.5 – 6 | 5.5 – 6 | 5.5 – 6 |
| W. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 5.625 – 5.9 | 5.625 – 5.9 | 5.625 – 5.9 | 5.625 – 5.9 |
| **60 octane & below:** | | | | |
| Oklahoma | 5.25 – 5.625 | 5.25 – 5.5 | 5.25 – 5.5 | 5.125 – 5.5 |
| Mid-Western (Group 3 basis) | 5.2 – 5.625 | 5.1 – 5.5 | 5.1 – 5.4 | 5.1 – 5.4 |
| N. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 5.125 – 5.625 | 5.125 – 5.625 | 5.125 – 5.625 | 5.125 – 5.625 |
| W. Tex. (For shpt. to Tex. & N. M. dest'ns.) | 5.25 – 5.5 | 5.25 – 5.5 | 5.25 – 5.5 | 5.25 – 5.5 |
| **Motor Gasoline, 72-74 octane (ASTM)** | | | | |
| New York harbor | 8 – 8.5 | 8 – 8.5 | 8 – 8.5 | 8 – 8.5 |
| New York harbor, barges | 7.75 – 8.5 | 7.75 – 8.5 | 7.75 – 8.5 | 7.75 – 8.5 |
| Philadelphia district | 8 | 8 | 8 | 8 |
| Baltimore district | 8 (1) | 8 (1) | 8 (1) | 8 (1) |
| **Motor Gasoline:** | | | | |
| **Western Penna. Bradford-Warren:** | | | | |
| Min. 80 Oct. ('39 Research) | 8 (2) | 8 (2) | 8 (2) | 8 (2) |
| 74-76 Oct. (ASTM) | 7.75 (1) | 7.75 (1) | 7.75 (1) | 7.75 (1) |
| 74-76 Oct. (L-3) | 7.5–7.75 (2) | 7.5–7.75 (2) | 7.5–7.75 (2) | 7.5–7.75 (2) |
| **Western Penna. Other Districts:** | | | | |
| Min. 80 Oct. ('39 Research) | 8 (1) | 8 (1) | 8 (1) | 8 (1) |
| 74-76 Oct. (ASTM) | 7.25 – 7.75 | 7.25 – 7.75 | 7.25 – 7.75 | 7.25 – 7.75 |
| 74-76 Oct. (L-3) | 7.25–7.5 (2) | 7.25–7.5 (2) | 7.25–7.5 (2) | 7.25–7.5 (2) |

# REFINERY PRICES

## Gasoline—U. S. Motor (ASTM Octane) except where otherwise specified

| Prices Effective | July 7 | June 30 |
|---|---|---|
| **OKLAHOMA** | | |
| 80-82 oct. Ethyl | 6.5 – 7.25 | 6.5 – 7.25 |
| 72-74 oct. | 6 – 6.375 | 5.875 – 6.3 |
| 63-66 oct. | 5.625 – 6 | 5.5 – 5.9 |
| 60 oct. & below | 5.25 – 5.625 | 5.125 – 5.5 |
| 60-62 400 e.p. | 5.25 (1) | 5.25 (1) |
| **MID-WESTERN** (Group 3 basis) | | |
| 80-82 oct. Ethyl | 7.2 (1) | 7.2 (1) |
| 72-74 oct. | 6 – 6.375 | 5.875 – 6.2 |
| 63-66 oct. | 5.6 – 6 | 5.5 – 5.8 |
| 60 oct. & below | 5.2 – 5.625 | 5.1 – 5.4 |
| **N. TEX.** (For shpt. to Tex. & N. M. dest'ns.) | | |
| 80-82 oct. Ethyl | 7 (2) | 7 (2) |
| 72-74 oct. | 5.875 – 6.375 | 5.875 – 6.375 |
| 63-66 oct. | 5.5 – 6 | 5.5 – 6 |
| 60 oct. & below | 5.125 – 5.625 | 5.125 – 5.625 |
| 60-62, 400 e.p. | 5.25 – 5.5 (1) | 5.25 – 5.5 (1) |
| **W. TEX.** (For shpt. to Tex. & N. M. dest'ns.) | | |
| 80-82 oct. Ethyl | 7.125 (1) | 7 (1) |
| 72-74 oct. | 6 – 6.3 | 6 – 6.3 |
| 63-66 oct. | 5.625 – 5.9 | 5.625 – 5.9 |
| 60 oct. & below | 5.25 – 5.5 | 5.25 – 5.5 |
| **CENT. W. TEX.** (Prices to truck transports) | | |
| 80 oct. & above | 7 (2) | 7 (2) |
| 72-74 oct. | 6 (2) | 6 (2) |
| 67-69 oct. | 5.5 (2) | 5.5 (2) |
| 62 oct. & below | 5.25 (2) | 5.25 (2) |
| **AMARILLO, TEX.** (For shpt. to W. Okla. & Tex. differential territory.) | | |
| 60 oct. & below | 5.125–5.5 (2) | 5.125–5.5 (2) |
| 60-62, 400 e.p. | 5.375–5.625 (1) | 5.375–5.625 (1) |

| Prices Effective | July 7 | June 30 |
|---|---|---|
| **KANSAS** (For Kansas destinations only) | | |
| 80-82 oct. Ethyl | 7.4 (1) | 7.4 (1) |
| 72-74 oct. | 6.2 – 6.3 | 6.2 – 6.3 |
| 63-66 oct. | 5.7 – 5.9 | 5.7 – 5.9 |
| 60 oct. & below | 5.4 – 5.5 | 5.4 – 5.5 |
| **ARK.** (For shipment to Ark. & La.) | | |
| 72-74 oct. | 6 (1) | 6 (1) |
| 70-72 oct. | 5.875 (1) | 5.875 (1) |
| 60 oct. & below | 5.5 (1) | 5.5 (1) |
| **WESTERN PENNA.** (Motor gasoline.) | | |
| *Bradford-Warren:* | | |
| Min. 80 oct. ('39 research) | 8 (2) | 8 (2) |
| 74-76 oct. (ASTM) | 7.75 (1) | 7.75 (1) |
| 74-76 oct. (L-3) | 7.5–7.75 (2) | 7.5–7.75 (2) |
| *Other districts:* | | |
| Min. 80 oct. ('39 research) | 8 (1) | 8 (1) |
| 74-76 oct. (ASTM) | 7.25 – 7.75 | 7.25 – 7.75 |
| 74-76 oct. (L-3) | 7.25–7.5 (2) | 7.25–7.5 (2) |
| **CENTRAL MICHIGAN** (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group) | | |
| U.S. Motor: (Oct. L-3): | | |
| 72-74 oct. | 8.5 | 8.5 |
| 67-69 oct. | 7.7 – 7.75 | 7.7 – 7.75 |
| Str. run gasoline, excluding Detroit shpt. | 6 – 6.25 | 6 – 6.25 |
| **OHIO** (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances) | | |
| 72-74 oct. | 8.375 | 8.375 |
| **CALIFORNIA** U.S. Motor: | | |
| 58-61 grav., 375-400 e.p., 65 oct. & above | 7 – 7.25 | 7 – 7.25 |
| 54-58 grav., for outside state shipment | 6 – 6.75 | 6 – 6.75 |
| 54-58 grav., for instate shipment | 6 – 6.75 | 5.75 – 6.75 |

## Kerosine, Gas & Fuel Oils

| Prices Effective | July 7 | June 30 |
|---|---|---|
| **OKLAHOMA** | | |
| 41-43 grav. w.w. | 4.375 – 4.75 | 4.375 – 4.75 |
| 42-44 grav., w.w. | 4.5 – 4.875 | 4.5 – 4.875 |
| Range Oil | 4 – 4.375 | 4 – 4.375 |
| No. 1 P.W. | 3.875 – 4.125 | 3.875 – 4.125 |
| No. 1 straw | 3.5 – 4.25 (2) | 3.5 – 4.25 (2) |
| No. 2 straw | 3.5 – 3.75 | 3.5 – 3.75 |
| U.G.I. gas oil | 3.5 (1) | 3.5 (1) |
| No. 3 fuel | 3.375 – 3.625 | 3.375 – 3.625 |
| No. 6 fuel | $0.80–$0.85 (2) | $0.80–$0.85 (2) |
| 14-16 fuel | $0.95 (2) | $0.95 (2) |
| **MID-WESTERN** (Group 3 basis) | | |
| 41-43 grav. w.w. | 4.375 – 4.75 | 4.375 – 4.75 |
| 42-44 grav. w.w. | 4.5 – 4.875 | 4.5 – 4.875 |
| Range Oil | 4 (1) | 4 (1) |
| No. 1 p.w. | 3.75 – 4.125 | 3.75 – 4.125 |
| No. 2 straw | 3.375 – 3.6 | 3.375 – 3.6 |
| No. 3 | 3.25 – 3.5 | 3.25 – 3.5 |
| No. 5 | $0.85 (1) | $0.85 (1) |
| No. 6 | $0.85 (1) | $0.85 (1) |
| **N. TEX.** (For shpt. to Tex. & N. M. dest'ns.) | | |
| 41-43 grav. w.w. | 4 – 4.875 | 4 – 4.875 |
| No. 1 P.W. | 4.125–4.375 (1) | 4.125–4.375 (1) |
| **AMARILLO, TEX.** (For shpt. to W. Okla. & Tex. differential territory.) | | |
| 41-43 grav. w.w. | 4.75 – 5 (2) | 4.75 – 5 (2) |
| No. 1 straw | 4.3 (1) | 4.3 (1) |
| **KANSAS** (For Kansas destinations only) | | |
| 41-43 grav. w.w. | 4.6 (1) | 4.6 (1) |
| 42-44 gravity w.w. | 4.7 – 4.875 | 4.7 – 4.875 |
| No. 1 p.w. | 4.4 – 4.3 (2) | 4.4 – 4.3 (2) |
| No. 6 fuel | $0.85–$0.90 (2) | $0.85–$0.90 (2) |

# REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

*SPECIAL CONDITIONS ON PRICES—Due to great demand, refiners in nearly all territories and on the most desired products are quoting prices and limiting sales to regular customers only, with varying definitions for such customers. Refiners report refusing to accept higher prices bid by new and casual customers. OILGRAM in its tables is showing only actual sales prices and prices asked by refiners. Bid prices, that do not become sales, are, when learned, reported in the news leads.*

## Kerosine, Gas & Fuel Oil

(Continued)

| Prices Effective | July 7 | June 30 |
|---|---|---|
| **ARK.** (For shipment to Ark. and La.) | | |
| 41-43 grav. w.w. | 4.625 (1) | 4.625 (1) |
| No. 1 | 4 (1) | 4 (1) |
| No. 2 | 3.375 (1) | 3.375 (1) |
| No. 3 fuel | 3.375 (1) | 3.375 (1) |
| Tractor fuel, for shpt. to Ark. points only | 5.125 (1) | 5.125 (1) |
| **WESTERN PENNA.** | | |
| *Bradford-Warren:* | | |
| 45 grav. w.w. | 6 – 6.25 | 6 – 6.25 |
| 46 grav. w.w. | 6.125 (1) | 6.125 (1) |
| No. 1 fuel | 6.25 (1) | 6.25 (1) |
| No. 2 " | 5.875–6.25 (2) | 5.875–6.25 (2) |
| No. 3 " | 6.25 (1) | 6.25 (1) |
| 36-40 gravity | 6 (1) | 6 (1) |
| *Other districts:* | | |
| 45 grav. w.w. | 5.75 – 6 | 5.75 – 6 |
| 46 grav. w.w. | 5.75 – 6.125 | 5.75 – 6.125 |
| 47 grav. w.w. | 5.875– 6.25 | 5.875– 6.25 |
| No. 1 fuel | 5.625– 5.75 | 5.625– 5.75 |
| No. 2 " | 5.625– 5.75 | 5.625– 5.75 |
| No. 3 " | 5.625– 5.75 | 5.5 – 5.75 |
| 36-40 grav., Pittsburgh dist. prices excluded | 5.625– 5.75 | 5.5 – 5.75 |
| **CENTRAL MICHIGAN** (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group.) | | |
| 47-49 gravity w.w. | 6 – 6.375 | 6 – 6.375 |
| P.W. Distillate | 5.5 – 6 | 5.5 – 6 |
| No. 3 gas oil, Straw | 5 – 5.8 | 5 – 5.8 |
| U.G.I. gas oil | 4.5 – 4.875 | 4.5 – 4.875 |
| *Fuel Oils* (Vis. at 100). | | |
| 300-500 Vis. | 4 – 4.25 (2) | 4 – 4.25 (2) |
| 100-300 Vis. | 4.5 (1) | 4.5 (1) |
| **OHIO** (S. O. Ohio quotations for statewide delivery) | | |
| Kerosine | 6.5 | 6.5 |
| **CALIFORNIA** | | |
| 40-43 grav. w.w. | 4.5 – 6 | 4.5 – 6 |
| *San Joaquin Valley:* | | |
| Heavy fuel | $0.75 –$0.85 | $0.75 –$0.85 |
| Light fuel | $0.75 –$0.85 | $0.75 –$0.85 |
| Diesel fuel | 2.75 – 4 | 2.75 – 4 |
| Stove dist. | 2.75 – 4 | 2.75 – 4 |
| *Los Angeles:* | | |
| Heavy fuel | $0.65 –$0.70 | $0.65 –$0.70 |
| Light fuel | $0.70 –$0.75 | $0.70 –$0.75 |
| Diesel fuel | 2.75 – 4 | 2.75 – 4 |
| Stove dist. | 2.5 – 4 | 2.5 – 4 |
| *San Francisco:* | | |
| Heavy fuel | $0.80 | $0.80 |
| Light fuel | $0.90 | $0.90 |
| Diesel fuel | 4.5 | 4.5 |
| Stove dist. | 5.5 | 5.5 |

*Note:* All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

## Lubricating Oils

**WESTERN PENNA.**

Prices were given by Penna. refiners as their quotations to jobbers & compounders only. Neutral prices were reported by refiners as for limited sales to their regular customers only.

*Viscous Neutrals—No. 3 col. Vis. at 70°F*

| | | |
|---|---|---|
| 200 Vis. (180 at 100°) 420-425 fl. | | |
| 0 p.t. | 39 (1) | 33.5–39 (2) |
| 10 p.t. | 38.5 (1) | 32.5–38.5 (2) |
| 15 p.t. | 37.5 (1) | 31.5–37.5 (2) |
| 25 p.t. | 31–38 | 30 –36 |
| 150 Vis. (143 at 100) 400-405 fl. | | |
| 0 p.t. | 37.5 (1) | 31.5–37.5 (2) |
| 10 p.t. | 36.5 (1) | 30.5–36.5 (2) |
| 15 p.t. | 35.5 (1) | 29.5–35.5 (2) |
| 25 p.t. | 29–36 | 28 –34 |
| *Cylinder Stocks* | | |
| Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col. | | |
| 10 p.t. | 27.5 (1) | 24.5–26.5 (2) |
| 15 p.t. | 26.5 (1) | 23.5–25.5 (2) |
| 25 p.t. | 23–25 | 22–23 |
| 600 S.R. filterable | 13–14 | 12.5–13.5 |
| 650 S.R. | 13.5–14.5 | 13 –14.5 |
| 600 fl. | 14–15 | 13.5–15 |
| 630 fl. | 15–16 | 14.5–16 |
| **MID-CONTINENT** (F. o. b. Tulsa) | | |
| Neutral Oils (Vis. at 100° F. 0 to 10 P.P.) | | |
| Pale Oils: Vis. Color | | |
| 60- 85—No. 2 | 6.5 – 6.75 | 6–6.75 |
| 86-110—No. 2 | 6.5 – 7.25 | 6.7.25 |
| 150—No. 3 | 11.25 –11.5 | 10.5–11.25 |
| 180—No. 3 | 11–12 | 11–11.5 |
| 200—No. 3 | 11–12.5 | 11–12 |
| 250—No. 3 | 12.5–13.5 | 12–13 |
| 280—No. 3 | 14–14.75 | 13–14.75 |
| 300—No. 3 | 15–15.5 | 14–15.25 |

## Lubricating Oils (Cont'd)

| Prices Effective | July 7 | June 30 |
|---|---|---|
| Red Oils: | | |
| 180—No. 5 | 12 (1) | 11 (1) |
| 200—No. 5 | 12–12.5 (2) | 11–11.5 (2) |
| 280—No. 5 | 14.5 (1) | 13.5 (1) |
| 300—No. 5 | 13.5–15.5 | 13.5–14.5 |

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

| | | |
|---|---|---|
| Bright Stock—Vis. at 210° | | |
| 200 Vis. D | 24 (1) | 23 (1) |
| 150-160 Vis. D: | | |
| 0 to 10 p.p. | 20–20.5 | 19–20 |
| 10 to 25 p.p. | 19.5–20 | 18.5–19.5 |
| 25 to 40 p.p. | 19 (1) | 18 (1) |
| 150-160 vis. E | 19–19.5 | 18–18.5 |
| 120 Vis. D: | | |
| 0 to 10 p.p. | 19–19.5 | 18–18.5 |
| 600 S.R. Dark Green | 8 – 8.5 (2) | 7.5–8 (2) |
| 600 S.R. Olive Green | 9–10 | 9–10 |
| 631 S.R. | 16.5 (1) | 14.5 (1) |
| Black Oil | 4–5.5 (2) | 4–5.5 (2) |

**SOUTH TEXAS** Neutral Oils

| Vis. Color | | |
|---|---|---|
| Pale Oils: (*Vis. at 100°F*) | | |
| 100 No. 1½-2½ | 5.5–6 | 5.5–6 |
| 200 No. 2-3 | 7.75 | 7.75 |
| 300 No. 2-3 | 8.25 | 8.25 |
| 500 No. 2½-3½ | 9 | 9 |
| 750 No. 3-4 | 9.25 | 9.25 |
| 1200 No. 3-4 | 9.375 | 9.375 |
| 2000 No. 4 | 9.5 | 9.5 |
| Red Oils: | | |
| 100 No. 5-6 | 5.75–6 (2) | 5.75–6 (2) |
| 200 No. 5-6 | 7.75 | 7.75 |
| 300 No. 5-6 | 8.25 | 8.25 |
| 500 No. 5-6 | 9 | 9 |
| 750 No. 5-6 | 9.25 | 9.25 |
| 1200 No. 5-6 | 9.375 | 9.375 |
| 2000 No. 5-6 | 9.5 | 9.5 |

**CHICAGO** (From Mid-Continent p.l. crude.)

Neutral oils (Vis. at 100° F. 0 to 10 p.p.)

| Pale Oils Vis. Color | | |
|---|---|---|
| 60-85—No. 2 | 8.25 (1) | 8.25 (1) |
| 86-110—No. 2 | 8.25 (1) | 8.25 (1) |
| 150—No. 3 | 11.5 (1) | 11.5 (1) |
| 180—No. 3 | 12 (1) | 12 (1) |
| 200—No. 3 | 12 (1) | 12 (1) |
| 250—No. 3 | 13.5 (1) | 13.5 (1) |
| Red Oils: | | |
| 180—No. 5 | 12 (1) | 12 (1) |
| 200—No. 5 | 12 (1) | 12 (1) |
| 250—No. 5 | 13 (1) | 13 (1) |
| 280—No. 5 | 14 (1) | 14 (1) |
| 300—No. 5 | 14.5 (1) | 14.5 (1) |

**Note:** Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

| | | |
|---|---|---|
| Unfiltered Steam Refined: (Viscosity at 210°) | | |
| 140 | 10 (1) | 10 (1) |
| 160 | 11 (1) | 11 (1) |
| 200 | 12 (1) | 12 (1) |
| Bright stocks, 160 vis. at 210 No. 8 col or: | | |
| 0 to 10 p.p. | 20 (1) | 20 (1) |
| 15 to 25 p.p. | 19.5 (1) | 19.5 (1) |
| 30 to 40 p.p. | 18 (1) | 18 (1) |
| E filtered Cyl. Stock | 14 (1) | 14 (1) |

**Note:** To obtain prices delivered in Chicago, add 0.25c per gal.

## Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

| | | |
|---|---|---|
| **FOB GROUP 3** | | |
| Grade 26-70 | 3.375 (Sales) | 3.375 (Sales) |
| **FOB BRECKENRIDGE** | | |
| Grade 26-70 | 3 (Sales) | 3 (Sales) |
| **CALIFORNIA** (FOB plants in Los Angeles basin) | | |
| 75-85, 350-375 e.p. for blending | 4.375– 4.625 | 4.375– 4.625 |

## Naphtha and Solvent

| Prices Effective (FOB Group 3) | July 7 | June 30 |
|---|---|---|
| Stoddard solvent | 6.625 | 6.625 |
| Cleaners' naphtha | 7.125 | 7.125 |
| V. M. & P. naphtha | 7.125 | 7.125 |
| Mineral spirits | 6.125 | 6.125 |
| Rubber solvent | 7.125 | 7.125 |
| Lacquer diluent | 7.375– 8.125 | 7.375– 8.125 |
| Benzol Diluent | 7.875– 8.625 | 7.875– 8.625 |
| **WESTERN PENNA** | | |
| Untreated naphtha | 6.5 – 6.75 | 6.5 – 6.75 |
| Stoddard solvent | 6.75 – 7 | 6.75–7 |
| **OHIO** (S. O. Ohio quotations for statewide delivery): | | |
| V.M.&P. naphtha, D.C. naphtha, Varnelene & Sohio solvent | 10 | 10 |
| Rubber solvent | 9 | 9 |

## Wax

White Crude Scale:

| | | |
|---|---|---|
| **WESTERN PENNA.** (Bbls. C.L., N. Y.) | | |
| 122-124 A.m.p. | 5–5.25 | 5–5.25 |
| 124-126 A.m.p. | 5.5–5 | 5.5–5 |
| **OKLAHOMA** (Bbls. or burlap bags, C.L.) | | |
| 124-6 AMP | 5.25 (1) | 5.25 (1) |
| 131-3 AMP | 5.375 (1) | 5.375 (1) |

**CHICAGO** (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods; add 3° F. to convert into AMP.)

| | | |
|---|---|---|
| *Fully refined:* | | |
| 122-124 (bags only) | 5.6 | 5.6 |
| 125-127 | 5.6 | 5.6 |
| 127-129 | 5.85 | 5.85 |
| 130-132 | 6.15 | 6.15 |
| 132-134 | 6.4 | 6.4 |
| 135-137 | 7.15 | 7.15 |

## Petrolatums

**WESTERN PENNA.** (Bbls., carloads; tank cars, 0.5c per lb. less.)

| | | |
|---|---|---|
| Snow White | 5.625–7 | 5.625 7 |
| Lily White | 4.875–6 | 4.875–6 |
| Cream White | 4.125–5 | 4.125–5 |
| Light Amber | 3.125–3.875 | 3.125–3.875 |
| Amber | 2.875–3.5 | 2.875–3.5 |
| Red | 2.875–3.25 | 2.875–3.25 |

## Group 3 Freight Rates

**To Division Headquarters Points of Standard Oil Co. of Indiana**

| | Gasoline Kerosine | | Distillate-Gas Oil-Fuel Oil | |
|---|---|---|---|---|
| | Cents per Cwt. | Cents per gal. 6.6 lbs. | Cents per Cwt. | Cents per gal. 7.4 lbs. |
| Chicago, Ill. | 36 | 2.376 | 32 | 2.368 |
| Decatur, Ill. | 32 | 2.112 | 31 | 2.294 |
| Joliet, Ill. | 36 | 2.376 | 32 | 2.368 |
| Peoria, Ill. | 33 | 2.178 | 31 | 2.294 |
| Quincy, Ill. | 31 | 2.046 | 29 | 2.146 |
| Indianapolis, Ind. | 38 | 2.508 | 39 | 2.886 |
| Evansville, Ind. | 35 | 2.310 | 37 | 2.738 |
| South Bend, Ind. | 44 | 2.904 | **42 | **3.108 |
| Detroit, Mich. | 64 | 4.224 | 51 | 3.774 |
| Grand Rapids, Mich. | 55 | 3.630 | **50 | **3.700 |
| Saginaw, Mich. | 66 | 4.356 | 53 | 3.922 |
| Green Bay, Wis. | 41 | 2.706 | 41 | 3.034 |
| Milwaukee, Wis. | 39 | 2.574 | 34.5 | 2.553 |
| LaCrosse, Wis. | 37 | 2.442 | 37 | 2.738 |
| Minneapolis-St. Paul | 37 | 2.442 | 37 | 2.738 |
| Duluth, Minn. | 41 | 2.706 | 41.5 | 3.071 |
| Mankato, Minn. | 37 | 2.442 | 37 | 2.738 |
| Des Moines, Ia. | 29 | 1.914 | 29 | 2.146 |
| Davenport, Ia. | 33 | 2.178 | 31 | 2.294 |
| Mason City, Ia. | 34 | 2.244 | 33.5 | 2.479 |
| St. Louis, Mo. | 29 | 1.914 | 26.5 | 1.961 |
| Kansas City, Mo. | 22 | 1.452 | 22.5 | 1.665 |
| St. Joseph, Mo. | 25 | 1.650 | 22.5 | 1.665 |
| Fargo, N. D. | 51 | 3.366 | 50.5 | 3.737 |
| Huron, S. D. | 43 | 2.828 | 42.5 | 3.145 |
| Wichita | | | | |
| From Ponca City | 7.5 | *0.495 | 7.5 | †0.555 |
| From Tulsa | 12.5 | *0.825 | 12.5 | †0.925 |
| From Cushing | 11 | *0.726 | 11 | †0.814 |

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

# SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

*SPECIAL CONDITIONS ON PRICES—Due to great demand, refiners in nearly all territories and on the most desired products are quoting prices and limiting sales to regular customers only, with varying definitions for such customers. Refiners report refusing to accept higher prices bid by new and casual customers. OILGRAM in its tables is showing only actual sales prices and prices asked by refiners. Bid prices, that do not become sales, are, when learned, reported in the news leads.*

## Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators, FOB their terminals)—Prices Effective July 7

MOTOR GASOLINE

| District: | Min. 80 Oct. '39 Research (Max. 2 cc. Lead) | 72-74 Oct. (ASTM) | 68-70 Oct. (ASTM) |
|---|---|---|---|
| N. Y. Harb. | 8 – 9 | 8 – 8.5 | 8 – 8.25 (2) |
| N. Y. Harb., barges | 8 – 8.75 | 7.75 – 8.5 | 7.75 – 8 (2) |
| Albany | 8.1 | .... | .... |
| Philadelphia | 8 – 8.7 | 8 | 8 – 8.2 |
| Baltimore | 7.75 – 8 | 8 (1) | 8 (1) |
| Norfolk | 7.5 – 8 | 7.25 – 8 (2) | 7.25 – 8 |
| Wilmington, N. C. | 7.5 – 8.85 | 7.25 (1) | 7.25–7.5 (2) |
| Charleston | 7.6 –7.8 (2) | .... | 6.9 –7.1 (1) |
| Savannah | 7.12 – 7.7 | 7.25 (1) | 7.1 –7.3 (2) |
| Jacksonville | 7 – 7.7 | 6.75 (1) | 7 –7.3 (2) |
| Miami | 7.12 –7.5 (2) | .... | 6.8 – 7 (1) |
| Tampa | 7 – 7.5 | 6.75 (1) | 6.6 –6.8 (1) |
| Pensacola | 7 –7.2 (1) | .... | 6.6 –6.8 (1) |
| Mobile | 6.62–7.2 (2) | .... | 6.6 –6.8 (1) |
| Portland | 8.3 – 9.4 | 8.6 (1) | .... |
| Boston | 8.2 – 9 | 8.5 (2) | 8.5 (1) |
| Providence | 8.2 – 9.1 | 8.5 (1) | .... |

FUEL OILS

| | KEROSINE and or NO. 1 FUEL | No. 2 | No. 3 | No. 5 | No. 6 |
|---|---|---|---|---|---|
| N. Y. Harb. | 5.2 – 5.5 | 4.9 – 5.25 | 4.9 | $1.65 –$1.75 | $1.35 –$1.45 |
| N. Y. Harb., barges | 5.1 – 5.5 | 4.8 – 5.25 | 4.8 | .... | .... |
| Albany | 5.4 | 5 | 5 (2) | $1.95 (1) | $1.55 (1) |
| Philadelphia | 5.25 – 5.75 | 5 – 5.25 | 5 | $1.57 | $1.35 |
| Baltimore | 5.25 | 5 | 5 | $1.57 (1) | $1.35 |
| Norfolk | 5.25 – 5.7 | 5 – 5.25 | 5 (1) | .... | $1.35 (1) |
| Wilmington, N. C. | 5.25 – 5.5 | 5 – 5.25 | .... | .... | .... |
| Charleston | 5.25 – 5.5 | 5 (1) | .... | .... | $1.30 (1) |
| Savannah | 5.25 – 5.5 | .... | .... | .... | $1.30 (1) |
| Jacksonville | 5 – 5.5 | 5 (1) | 5 (1) | .... | $1.30 (1) |
| Miami | 5.25–5.5 (2) | .... | .... | .... | .... |
| Tampa | 5 – 5.5 | 5 (1) | .... | .... | $1.25 (1) |
| Pensacola | 4.8 – 5 (1) | .... | .... | .... | .... |
| Mobile | 4.75 – 5 | .... | .... | .... | .... |
| Portland | 5.4 | 5 | 5 (1) | $1.95 (1) | $1.35 –$1.55 |
| Boston | 5.3 | 4.9 | 4.9 (1) | $1.65 (2) | $1.35 |
| Providence | 5.3 | 4.9 | 4.9 (2) | $1.60 –$1.65 | $1.35 |

| | Bunker C Fuel Ships' bunkers (Ex Lighterage) | Diesel Oil Ships' bunkers (Ex Lighterage) | Diesel Oil Shore Plants | Gas House Gas Oil 28-34 Gravity |
|---|---|---|---|---|
| N. Y. Harbor | $1.35 –$1.45 | $2.00 | 5 (1) | 5 (1) |
| Albany | $1.55 (1) | $2.20 (1) | 5 (1) | 5.2 (1) |
| Philadelphia | $1.35 | $2.00 –$2.10 | .... | .... |
| Baltimore | $1.35 | $2.00 | .... | .... |
| Norfolk | $1.35 (2) | $2.00 (2) | .... | .... |
| Charleston | $1.30 (2) | $2.00–$2.10 (2) | .... | .... |
| Savannah | $1.30 (1) | $1.99 (1) | .... | .... |
| Jacksonville | $1.30 (2) | $1.99 –$2.10 | .... | .... |
| Tampa | $1.25 (2) | $1.99 –$2.10 | .... | .... |
| Portland | $1.35 –$1.55 | $2.10 | 5 (1) | 5.1 (1) |
| Boston | $1.35 | $2.00 | 4.9 (1) | 5 (1) |
| Providence | $1.35 | $2.00 | 4.9 (1) | 5 (1) |

## New York Export Lubes

(Penna. Products in bbls. FAS New York)

| Prices Effective | July 7 | June 30 |
|---|---|---|
| *Bright stock:* | | |
| Light, 25 p.t. | No price | No price |
| *Neutral oil:* | | |
| 150 3 color, 25 p.t. | No price | No price |
| 600 s.r., unfilt | No price | No price |
| 650 s.r., unfilt | No price | No price |
| 600 fl. s.r. | No price | No price |
| 630 fl., s.r. | No price | No price |

## Wax

(Melting points are AMP. 3° higher than EMP. Export prices FAS c.l. Domestic prices FOB, in bags, c.l. Scale solid; fully refined slabs.)

Prices Effective July 7

| Crude Scale: | New Orleans Export | N. Y. Domestic | N. Y. Export |
|---|---|---|---|
| 124-6 Yellow | 5 (1) | .... | 5 (1) |
| 122-4 White | .... | 5 – 5.5 | 5–5.25 |
| 124-6 White | 5–5.25 (2) | 5–5.5 | 5–5.5 |
| Fully Refined: | | | |
| 123-5 | 6.25 (1) | 6.4 (1&a) | 6.25 (1) |
| 125-7 | 6.25 (1) | 6.55 (1&a) | 6.25 (2) |
| 128-30 | 6.5 (1) | 5.6–6.6 (2) | 6.5 (2) |
| 130-32 | 6.75 (1) | 6.85 (1) | 6.5–6.75 (2) |
| 133-5 | 7 (1) | 6.15–7.15 (2) | 7 (2) |
| 135-7 | 7.25 (1) | .... | 7–7.25 (2) |
| 108-11 White Match wax (tight bbls.) | | | 5.5 (1) |

## Naphtha

| Prices Effective July 7 | V.M.&P. Naphtha | Mineral Spirits |
|---|---|---|
| Baltimore | 10 (2) | 9 |
| New York Harbor | 10 (2) | 9–9.5 |
| Philadelphia district | 10.5 (2) | 9.5 |
| Boston | 10 (2) | 9.5 |
| Providence | 10 (1) | 9.5 (2) |

## Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

| Prices Effective | July 7 | June 30 |
|---|---|---|
| 375 e.p. blend, 70 oct. | 5.875– 6.375 | 5.875– 6.125 |
| 390 e.p. blend, 68 oct. | 5.75 – 6.25 | 5.75 – 6 |
| 390 e.p. blend, 66 oct. | 5.5 – 6.125 | 5.375– 5.625 |
| 400 e.p. blend, 65 oct. min. | 5.5 – 6 | 5.375– 5.625 |
| U. S. Motor, under 65 octane | 5.375– 5.875 | 5.25 – 5.5 |
| 38-40 grav. w.w. kero., 150 fire point | 4.5 – 5.5 | 4.5 – 5 |
| 41-43 grav., w.w. kero. | 4.75 – 5 | 4.75 – 5 |
| 44-grav., w.w. kero. | 5 – 5.5 | 5 – 5.5 |
| Diesel fuel, 24 & above | $1.25 –$1.30 | $1.25 –$1.30 |
| Diesel fuel, under 24 | $1.15 –$1.25 | $1.15 –$1.25 |
| 30-34 grav. diesel (gas oil) Pac. Spec. 200 | $1.25 –$1.35 | $1.25 –$1.35 |
| Grade C fuel, Pac. Spec. 400 | $0.85 –$0.90 | $0.85 –$0.90 |
| *In Ship's Bunkers, or deep tank lots:* | | |
| Diesel fuel, Pac. Spec. 200 | $1.35 –$1.45 | $1.35 –$1.45 |
| Grade C fuel, Pac. Spec. 400 | $0.85 –$0.90 | $0.85 –$0.90 |
| *Cased Goods:* (Per case) | | |
| 375-400 e.p. blend, 65 oct. & above | $1.50 –$1.60 | $1.50 –$1.60 |
| 400 e.p. blend, under 65 oct. | $1.40 –$1.50 | $1.40 –$1.50 |
| U. S. Motor | $1.35 –$1.45 | $1.35 –$1.45 |
| 40-43 grav. w.w. kero., 150 fire point | $1.30 –$1.40 | $1.30 –$1.40 |
| Kero., p.w. | $1.25 –$1.35 | $1.25 –$1.35 |

## Tanker Rates

| (Approximate rates. Cents per bbl.) | Last Paid | Owners Ask |
|---|---|---|
| Gulf-N. Atlantic: (not E. of N.Y.) | | |
| Hvy. Crude & Fuel (10 to 19.9 gravity) | 57 | .... |
| Light Crude, (30 grav. or Lighter) | 50 | .... |
| Gasoline | 50 | .... |
| Kerosine | 53 | .... |
| No. 2 Fuel | 57 | .... |

## Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf, for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

Prices Effective July 7

| Motor Gasoline Domestic | |
|---|---|
| Min. 80 oct. '39 Research, max. 2cc lead | 6.25 – 6.5 |
| 60-62, Gravity, Max. 400 e.p. | |
| 72-74 oct. leaded (ASTM) | 6 – 6.125 |
| 70 oct. unleaded " | 5.75 – 6 |
| 68 oct. " " | 5.625– 6 |
| 65 oct. " " | 5.25 – 5.75 |
| 60 oct. " " | 5 – 5.5 |
| 41-43 w.w. kerosine | 3.5 – 3.75 |
| No. 2 fuel | 3.5 – 3.625 |
| Gas Oil—Less than ½ of 1% sulfur. | |
| Below 43 diesel index | 3.5 |
| 43-47 " " | 3.5 |
| 48-52 " " | 3.5 – 3.875 |
| 53-57 " " | 3.75 |
| 58 & above diesel index | 3.875 |
| Diesel Oil, ships' bunkers (ex-lighterage) | $1.55 |
| Bunker C, " " | $0.85 –$0.95 |
| Bunker C, cargoes | $0.85 –$0.95 |
| **Motor Gasoline Export** | |
| 60-62 Gravity, Max. 400 e.p. | |
| 72-74 oct. leaded (ASTM) | 6 – 6.125 |
| 70 oct. unleaded " | 5.75 – 6 |
| 68 oct. " " | 5.625– 6 |
| 65 oct. " " | 5.25 – 5.75 |
| 60 oct. " " | 5 – 5.5 |
| 61-63 Gravity, Max. 390 e.p. | |
| 72-74 oct. leaded (ASTM) | 6 |
| 60 oct. unleaded " | .... |
| 64-66 Gravity, Max. 375 e.p. | |
| 72-74 oct. leaded (ASTM) | 6 |
| 60 oct. unleaded " | .... |
| 41-43 w.w. kerosine | 3.5 – 3.75 |
| Gas Oil—Less than ½ of 1% sulfur. | |
| Below 43 diesel index | 3.5 |
| 43-47 " " | 3.5 |
| 48-52 " " | 3.5 – 3.875 |
| 53-57 " " | 3.75 |
| 58 & above diesel index | 3.875 |

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk, FOB terminals)

| | July 7 New Steel Drums | Bulk |
|---|---|---|
| 200 vis. D 210 brt. stock | 30.5–31.5 (2) | 24.8–25.3 (2) |
| 150 vis. D 210 brt. stock 0-10 p.p. | 26.5–27.5 (2) | 20.8–21.3 (2) |
| 10-25 p.p. | 26 (1) | 20.8 (1) |
| 100 vis. D 210 brt. stock 0-10 p.p. | 26 (1) | 20.8 (1) |
| 10-25 p.p. | 25.5 (1) | 20.3 (1) |
| 200 vis. No. 3 col. neutral: 0-10 p.p. | 19 (1) | 13.8 (1) |

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. exprt. shp., FOB terminals)

| Vis. Color | July 7 | June 30 |
|---|---|---|
| *Untiltered Pale Oils:* | | |
| 100 No. 3 | 6 –6.25 (2) | 6 –6.25 (2) |
| 200 No. 3 | 7.75–8 (2) | 7.75–8 (2) |
| 300 No. 3 | 8.25–9 (2) | 8.25–9 (2) |
| 500 No. 3½ | 9.25–10.25 (2) | 9.25–10.25 (2) |
| 750 No. 4 | 9.75–11 (2) | 9.75–11 (2) |
| 1200 No. 4 | 10.25–11.5 (2) | 10.25–11.5 (2) |
| 2000 No. 4 | 12.5 (1) | 12.5 (1) |
| *Red Oils:* | | |
| 100 No. 5-6 | 6 (1) | 6 (1) |
| 200 No. 5-6 | 7.75–8 (2) | 7.75–8 (2) |
| 300 No. 5-6 | 8.25–9 (2) | 8.25–9 (2) |
| 500 No. 5-6 | 9.25–10.25 (2) | 9.25–10.25 (2) |
| 750 No. 5-6 | 9.75–11 (2) | 9.75–11 (2) |
| 1200 No. 5-6 | 10.25–11.5 (2) | 10.25–11.5 (2) |
| 2000 No. 5-6 | 11–12.5 (2) | 11–12.5 (2) |

(a) 0.4c discount generally given for slabs house.

# TANK WAGON PRICES

*Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline* **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect July 7, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

## S. O. New Jersey

**Esso (*Regular Grade*)**

| | Consumer Tank Car | Dealer T.W. | Gaso-line Taxes | Kero-sine T.W. |
|---|---|---|---|---|
| *Atlantic City, N. J | 8.5 | 9.5 | 4.5 | 7.8 |
| *Newark, N. J | 8.5 | 9.5 | 4.5 | 7.8 |
| Annapolis, Md | 8.35 | 9.85 | 5.5 | 9.5 |
| Baltimore, Md | 7.75 | 9.25 | 5.5 | 8.5 |
| Cumberland, Md | 9.15 | 10.65 | 5.5 | 10 |
| Washington, D. C | 8 | 9.5 | 3.5 | 9 |
| Danville, Va | 8.95 | 10.95 | 6.5 | 10.25 |
| Norfolk, Va | 7.75 | 9.75 | 6.5 | 10 |
| Petersburg, Va | 8.05 | 10.05 | 6.5 | 11 |
| Richmond, Va | 8.05 | 10.05 | 6.5 | 11 |
| Roanoke, Va | 9.25 | 11.25 | 6.5 | 10.5 |
| Charleston, W. Va | 9.05 | 11.55 | 6.5 | 11.5 |
| Parkersburg, W. Va | 8.35 | 10.85 | 6.5 | 11.2 |
| Wheeling, W. Va | 9.35 | 10.85 | 6.5 | 11.8 |
| Charlotte, N. C | 9.9 | 11.4 | 7.5 | 9.3 |
| Hickory | 10.45 | 11.95 | 7.5 | 10.3 |
| Mt. Airy, N. C | 10.3 | 11.8 | 7.5 | 9.5 |
| Raleigh, N. C | 9.65 | 11.15 | 7.5 | 10.3 |
| Salisbury, N. C | 9.95 | 11.45 | 7.5 | 10.7 |
| Charleston, S. C | 7.75 | 10.25 | 7.5 | ... |
| Columbia, S. C | 8.6 | 11.1 | 7.5 | ... |
| Spartanburg, S. C | 9.3 | 11.8 | 7.5 | ... |

| | Mineral Spirits T.W. | V.M.&P. T.W. |
|---|---|---|
| Newark, N. J | 12.5 | 14 |
| Baltimore, Md | 15 | |
| Washington, D. C | 15 | |

| Fuel Oils—T.W. | No. 1 | No. 2 | No. 3 |
|---|---|---|---|
| Atlantic City, N. J | 7.8 | 6.9 | 6.9 |
| Newark | 7.8 | 6.9 | 6.9 |
| Annapolis, Md | ... | 7.25 | ... |
| Baltimore | 7.5 | 7 | 7 |
| Washington, D. C | 8 | 7.25 | 7.25 |
| Norfolk, Va | 7.75 | 6.75 | 6.75 |
| Petersburg | 8 | 7 | ... |
| Richmond | 8 | 7 | 7 |
| Charlotte, N. C | 8.3 | 8.1 | ... |
| Hickory | ... | 8 | ... |
| Raleigh | 9.3 | 8.1 | ... |
| Charleston, S. C | ... | 7 | ... |
| Columbia | ... | 8 | ... |
| Spartanburg | ... | 8.8 | ... |

*Effective May 20, '41, minimum retail resale price of 13c posted thru New Jersey.

Discounts:

*Esso gasoline*—to undivided dealers, 0.5c off dealer t.w.

*Kerosine*—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

*Naphthas*—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price: Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

## Socony-Vacuum Oil Co., Inc.

**Socony Mobilgas (*Regular Grade*)**

| | Com. T.C. | Com. Cons. T.W. | Undiv. Dlr. T.W. | Gaso-line Taxes |
|---|---|---|---|---|
| New York City: | | | | |
| Manhattan & Bronx | 9.2 | 8.9 | 9.4 | *5.5 |
| Kings & Queens | 9.2 | 8.9 | 9.4 | *5.5 |
| Richmond | 8.8 | 8.5 | 9 | 5.5 |
| Albany, N. Y | 9 | 8.7 | 9.2 | 5.5 |
| Binghamton, N. Y | 10.1 | 9.8 | 10.3 | 5.5 |
| Buffalo, N. Y | 9.3 | 9 | 9.5 | 5.5 |
| Jamestown, N. Y | 9.5 | 9.2 | 9.7 | 5.5 |
| Mt. Vernon, N. Y | 9.2 | 8.9 | 9.4 | 5.5 |
| Plattsburg, N. Y | 10.1 | 9.8 | 10.3 | 5.5 |
| Rochester, N. Y | 9.9 | 9.6 | 10.1 | 5.5 |
| Syracuse, N. Y | 9.6 | 9.3 | 9.8 | 5.5 |
| Bridgeport, Conn | 9.1 | 8.8 | 9.3 | 4.5 |
| Danbury, Conn | 9.6 | 9.3 | 9.8 | 4.5 |
| Hartford, Conn | 9.7 | 9.4 | 9.9 | 4.5 |
| New Haven, Conn | 9.1 | 8.8 | 9.3 | 4.5 |
| Bangor, Me | 9.8 | 9.5 | 10 | 5.5 |
| Portland, Me | 9.4 | 9.1 | 9.6 | 5.5 |
| Boston, Mass | 9 | 8.7 | 9.2 | 4.5 |
| Concord, N. H | 10.5 | 10.2 | 10.7 | 5.5 |
| Lancaster, N. H | 11.1 | 10.8 | 11.3 | 5.5 |
| Manchester, N. H | 10.4 | 10.1 | 10.6 | 5.5 |
| Providence, R. I | 9.1 | 8.8 | 9.3 | 4.5 |
| Burlington, Vt | 10 | 9.7 | 10.2 | 5.5 |
| Rutland, Vt | 10.1 | 9.8 | 10.3 | 5.5 |

| | Mineral Spirits T.W. | V.M.&P. T.W. |
|---|---|---|
| Buffalo, N. Y | 11.1 | 12.3 |
| †New York City | 10 | 11 |
| Rochester, N. Y | 11.9 | 13.1 |
| Syracuse, N. Y | 12.7 | |
| Boston, Mass | 11 | 11.5 |
| Hartford, Conn | 13 | 14 |
| Providence, R. I | 12 | 12.5 |

| | Kero-sine Yard | Kero-sine TW | Mobil-fuel Diesel TC | Mobil-fuel Diesel TW | Mobil-heat Fuel Yard | Mobil-heat Fuel TW |
|---|---|---|---|---|---|---|
| New York: | | | | | | |
| Manhat'n & Bronx | ... | 7.9 | ... | 7.1 | ... | 6.7 |
| Kings & Queens | 5.4 | 7.9 | ... | 7.1 | 5.1 | 6.7 |
| Richmond | 5.4 | 7.9 | ... | 7.1 | 5.1 | 6.7 |
| Albany | 5.6 | 7.6 | 5.2 | 7.2 | 5.2 | 6.9 |
| Binghamton | 7 | 9 | ... | ... | 6.6 | 8.1 |
| Buffalo | 6.3 | 8.3 | 6.2 | 8.2 | 6 | 7.7 |
| Jamestown | 6.5 | 8.5 | ... | ... | 6.4 | 7.8 |
| Mt. Vernon | 5.6 | 8.1 | ... | 7.3 | 5.3 | 6.9 |
| Plattsburg | 6.2 | 8.2 | ... | ... | 5.8 | 7.3 |
| Rochester | 6.8 | 8.8 | ... | ... | 6.1 | 7.6 |
| Syracuse | 6.7 | 8.7 | ... | ... | 6.3 | 7.8 |
| Conn.: | | | | | | |
| Bridgeport | 5.7 | 7.5 | ... | ... | 5.4 | 6.7 |
| Danbury | 6.2 | 8.2 | ... | ... | 5.7 | 7 |
| Hartford | 5.6 | 7.5 | ... | 7.3 | 5.3 | 6.9 |
| New Haven | 5.5 | 7.5 | ... | ... | 5.2 | 6.8 |
| Maine: | | | | | | |
| Bangor | 6 | 8 | ... | ... | 5.4 | 7 |
| Portland | 5.6 | 8 | 5.2 | 7.2 | 5.2 | 6.9 |
| Mass.: | | | | | | |
| Boston | 5.7 | 7.9 | 5.3 | 7.3 | 5.3 | 6.9 |
| N. H.: | | | | | | |
| Concord | 6.5 | 8.5 | ... | ... | 6.4 | 7.9 |
| Lancaster | 7.6 | 9.6 | ... | ... | 7.4 | 8.9 |
| Manchester | 6.6 | 8.9 | ... | ... | 6.1 | 7.6 |
| R. I.: | | | | | | |
| Providence | 5.7 | 7.7 | 5.3 | 7.3 | 5.3 | 6.8 |
| Vermont: | | | | | | |
| Burlington | 6.2 | 8.2 | ... | ... | 5.7 | 7.1 |
| Rutland | 6.4 | 8.4 | ... | ... | 5.9 | 7.4 |

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals. annually; for quantities under 1000 gals. annually, add 0.5c per gal.

Discounts: Diesel—On t.w. deliveries, 0.5c for at least 100 gals.; 1c for full tank truck.

## Atlantic Refining

**Atlantic White Flash Gasoline (*Regular Grade*)**

| | Commercial T.C. | Dealer T.W. | Gaso-line Taxes | Kero-sine T.W. |
|---|---|---|---|---|
| Philadelphia, Pa | 8.5 | 9.5 | 5.5 | 10 |
| Pittsburgh | 9 | 10 | 5.5 | 10.5 |
| Allentown | 9 | 10 | 5.5 | 10.5 |
| Erie | 9 | 10 | 5.5 | 10 |
| Scranton | 9 | 10 | 5.5 | 10.5 |
| Altoona | 9 | 10 | 5.5 | 10.5 |
| Emporium | 9 | 10 | 5.5 | 10.5 |
| Indiana | 9 | 10 | 5.5 | 10.5 |
| Uniontown | 9 | 10 | 5.5 | 10.5 |
| Harrisburg | 9 | 10 | 5.5 | 10.5 |
| Williamsport | 9 | 10 | 5.5 | 10.5 |
| Dover, Del | ... | 10 | 5.5 | 10.5 |
| Wilmington, Del | ... | 9.5 | 5.5 | 10 |
| Boston, Mass | ... | 9.7 | 4.5 | 7.9 |
| Springfield, Mass | ... | 10.6 | 4.5 | 8.8 |
| Worcester, Mass | ... | 10.3 | 4.5 | 7.9 |
| Fall River, Mass | ... | 9.8 | 4.5 | 8.5 |
| Hartford, Conn | ... | 10.4 | 4.5 | 7.8 |
| New Haven, Conn | ... | 9.8 | 4.5 | 8.9 |
| Providence, R. I | ... | 9.8 | 4.5 | 8.5 |
| Atlantic City, N. J | ... | 9.5 | 4.5 | 7.8 |
| Camden, N. J | ... | 9.5 | 4.5 | 7.8 |
| Trenton, N. J | ... | 9.5 | 4.5 | 7.6 |
| Annapolis, Md | ... | 9.85 | 5.5 | 8.5 |
| Baltimore, Md | ... | 9.25 | 5.5 | 7.5 |
| Hagerstown, Md | ... | 10.35 | 5.5 | 8 |
| Richmond, Va | ... | 10.05 | 6.5 | 10 |
| Wilmington, N. C | ... | 10.35 | 7.5 | 9.6 |
| Brunswick, Ga | ... | 9.25 | 7.5 | *9 |
| Jacksonville, Fla | ... | 9.25 | 8.5 | 10 |

| | Mineral Spirits T.W.† | V.M.&P. T.W.† |
|---|---|---|
| Philadelphia, Pa | 10.5 | 12 |
| Lancaster, Pa | 11.5 | 13 |
| Pittsburgh, Pa | 14.5 | 14.5 |

| Fuel Oils—T.W. | 1 | 2 | 3 | 5 | 6 |
|---|---|---|---|---|---|
| Phila., Pa | 8 | 7 | 7 | 4.50 | 3.75 |
| Allentown, Pa | 8.5 | 7.2 | 7.2 | ... | ... |
| Wilmington, Del | 8.00 | 7 | 7 | ... | ... |
| Springfield, Mass | 8.8 | 7.3 | 7.3 | ... | ... |
| Worcester, Mass | 7.9 | 7.2 | 7.2 | ... | ... |
| Hartford, Conn | 7.8 | 6.9 | 6.9 | ... | ... |

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

## S. O. Ohio††

***Sohio X-70 Gasoline (*Regular Grade*)**

| | Consumer T.W. | **Re-sellers | ‡S.S. | Gaso-line Taxes | †Kero-sine T.W. |
|---|---|---|---|---|---|
| Ohio, Statewide | 12 | 10 | 13.5 | 5.5 | 8.5 |
| Akron | 12 | 9 | 11.5 | 5.5 | 8.5 |
| Cincinnati | 12 | 8.7 | 11.5 | 5.5 | 8.5 |
| Cleveland | 12 | 9.5 | 12.5 | 5.5 | 8.5 |
| Columbus | 12 | 9.5 | 12.5 | 5.5 | 8.5 |
| Dayton | 12 | 8.8 | 11.5 | 5.5 | 8.5 |
| Marietta | 12 | 9.5 | 12.5 | 5.5 | 8.5 |
| Portsmouth | 12 | 9.5 | 12.5 | 5.5 | 8.5 |
| Toledo | 12 | 8.75 | 11.5 | 5.5 | 8.5 |
| Youngstown | 12 | 9.5 | 12.5 | 5.5 | 8 |

**Aviation Gasoline—Statewide**

| | Consumer T.W. | Gasoline Taxes |
|---|---|---|
| Sohio Aviation | 14.5 | 5.5 |
| Esso Ethyl Aviation 74 Oct. | 15.5 | 5.5 |
| Esso Ethyl Aviation 80 Oct. | 16.5 | 5.5 |
| Esso Ethyl Aviation 87 Oct. | 17.5 | 5.5 |
| Esso Ethyl Aviation 90 Oct. | 17.5 | 5.5 |
| Esso Ethyl Aviation 100 Oct. | 24.5 | 5.5 |

| | †Naphthas—T.W. Statewide | Lucas County |
|---|---|---|
| S. R. Solvent | 13.5 | 13.5 |
| D. C. Naphtha | 14.5 | 14.25 |
| V.M.&P. Naphtha | 14.5 | 14.25 |
| Varnolene | 14.5 | 14.25 |
| Sohio Solvent | 14.5 | 14.25 |

| Fuel Oils—T.W. | No. 1 | No. 2 | No. 3 | No. 4 |
|---|---|---|---|---|
| Ohio, Statewide | 7.5 | 7.5 | 7 | ... |
| Cleveland | 9.5 | 9.5 | 9.0 | 6.75 |

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

**Except authorized agents.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 1c state tax.

‡Prices at company-operated stations.

††Statewide prices are subject to exceptions other than those shown.

Discounts:

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Fuel Oils—Statewide prices are for t.w. & drum deliveries of 50 gals. or more; prices for deliveries of less than 50 gals. are 0.5c higher. Cleveland Nos. 1, 2, and 3 prices are for bulk deliveries of 5 to 99 gals.; 100 gals. and over are 2c less. Cleveland No. 4 price is for full compartment hose dump only.

Naphthas—to contract consumers off t.w. prices—Statewide: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c. Lucas County: Less than 50 gals., tank wagon price; 50 to 249 gals., 0.5c; 250 to 499 gals., 1c; 500 gals. or over, 1.5c.

## S. O. Kentucky

**Crown Gasoline (*Regular*)**
**Standard (*Third Grade*)**

| | †Net Dealer Crown | Standard | Gaso-line Taxes | Kero-sine T.W. |
|---|---|---|---|---|
| Covington, Ky | 8.5 | 7.5 | 6.5 | 9 |
| Lexington, Ky | 10.25 | 9.25 | 6.5 | 9 |
| Louisville, Ky | 9.75 | 8.75 | 6.5 | 8.5 |
| Paducah, Ky | 9.75 | 8.75 | 6.5 | 6.5 |
| Jackson, Miss | 9.25 | 8.25 | 7.5 | *8.5 |
| Vicksburg, Miss | 9.25 | 8.25 | 7.5 | *8 |
| Birmingham, Ala | 9.75 | 8.75 | *8.5 | 8 |
| Mobile, Ala | 8.75 | 6.75 | *9.5 | 8.5 |
| Montgomery, Ala | 9.75 | 8.75 | *9.5 | *9 |
| Atlanta, Ga | 10.25 | 9.25 | 7.5 | *9 |
| Augusta, Ga | 10.25 | 9.25 | 7.5 | *8.5 |
| Macon, Ga | 10.25 | 9.25 | 7.5 | *9 |
| Savannah, Ga | 9.25 | 8.25 | 7.5 | *8 |
| Jacksonville, Fla | 9.25 | 8.25 | 8.5 | 8 |
| Miami, Fla | 9.25 | 8.25 | 8.5 | 8 |
| Pensacola, Fla | 8.75 | 7.75 | *9.5 | 8 |
| Tampa, Fla | 9.25 | 8.25 | 8.5 | 8 |

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices.

## S. O. Indiana

**Red Crown (*Regular Grade*)**
**Standard (*Third Grade*)**

| | Red Crown Cons. T.W. | Dealer Prices Red Crown | Stano-lind | Gaso-line Taxes | Kero-sine T.W. |
|---|---|---|---|---|---|
| Chicago, Ill | 11.1 | 9.1 | 8 | 4.5 | 10.3 |
| Decatur, Ill | 9.4 | 7.9 | 7 | 4.5 | 9 |
| Joliet, Ill | 11.9 | 9.1 | 8 | 4.5 | 10.3 |
| Peoria, Ill | 11.7 | 9.7 | 9.1 | 4.5 | 10.1 |
| Quincy, Ill | 10.4 | 8.9 | 8.9 | 4.5 | 10 |
| Indianapolis, Ind | 11.6 | 9.7 | 9.6 | 5.5 | *9.8 |
| Evansville, Ind | 11.4 | 9.9 | 9.4 | 5.5 | *9.6 |

(Continued on next page)

# TANK WAGON PRICES

*Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline* **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect July 7, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

## S. O. Indiana (Cont'd)

**Red Crown (*Regular Grade*)**
**Stanolind (*Third Grade*)**

| | Red Crown Cons. T.W. | Dealer Prices Red Crown T.W. | Stanolind T.W. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|---|
| South Bend, Ind. | 12 | 10.5 | 10 | 5.5 | *10.2 |
| Detroit, Mich. | 11.4 | 9.9 | 9.4 | 4.5 | 9.6 |
| Grand Rapids, Mich. | 11.4 | 9.9 | 9.4 | 4.5 | 9.6 |
| Saginaw, Mich. | 11.4 | 9.9 | 9.4 | 4.5 | 9.6 |
| Green Bay, Wis. | 12.2 | 10.7 | 10.2 | 5.5 | 10.6 |
| Milwaukee, Wis. | 12.1 | 10.6 | 10.1 | 5.5 | 10.5 |
| La Crosse, Wis. | 11.9 | 10.4 | 9.9 | 5.5 | 10.3 |
| Minneapolis-St. Paul | 11.9 | 10.4 | 9.5 | 5.5 | 10.3 |
| Duluth, Minn. | 12.2 | 10.7 | 10.2 | 5.5 | 10.6 |
| Mankato, Minn. | 11.9 | 10.4 | 9.5 | 5.5 | 10.3 |
| Des Moines, Ia. | 11.4 | 9.4 | 8.4 | 4.5 | *9.8 |
| Davenport, Ia. | 11.7 | 10.2 | 9.7 | 4.5 | *10.1 |
| Mason City, Ia. | 11.7 | 10.2 | 9.3 | 4.5 | *10.1 |
| St. Louis, Mo. | 9.9 | 8.4 | 8 | *4.5 | 9.8 |
| Kansas City, Mo. | 9.9 | 8.4 | 7.4 | *4.5 | 9.1 |
| St. Joseph, Mo. | 11.2 | 9.7 | 7.9 | *4.5 | 8.9 |
| Fargo, N. D. | 12.9 | 9.4 | 10 | 5.5 | 11.3 |
| Huron, S. D. | 12.3 | 10.8 | 10.3 | 5.5 | 10.7 |
| Wichita, Kans. | 10.3 | 8.2 | 6.5 | 4.5 | 8 |

**Stanavo Aviation 73 Octane**

| | | |
|---|---|---|
| Chicago, Ill. | 15.7 | 4.5 |
| Milwaukee, Wis. | 15.9 | 5.5 |
| Minneapolis, Minn. | 15.7 | 5.5 |
| St. Louis, Mo. | 15.2 | *4.5 |
| Kansas City, Mo. | 14.8 | *4.5 |
| Fargo, N. D. | 16.7 | 5.5 |
| Huron, S. D. | 16.1 | 5.5 |

| | Oleum Spirits | V.M.&P. Naphtha | Stanisol | *Taxes |
|---|---|---|---|---|
| (Prices are base prices before discounts) | | | | |
| Chicago | 13.5 | 13.8 | 12.8 | 4.5 |
| Detroit | 16 | 15 | 16.5 | 4.5 |
| K. C., Mo. | 13.3 | 14.3 | 13.8 | 4.5 |
| St. Louis, Mo. | 13.7 | 14.7 | 13.2 | 4.5 |
| Milwaukee | 14.4 | 15.4 | 14.9 | 5.5 |
| Minneap'ls | 14.2 | 15.2 | 13.5 | 5.5 |

| | Fuel Oils T.W. Standard Heater Oil |
|---|---|
| Chicago: | |
| 1-99 gals. | 8.75 |
| 100-149 gals. | 7.75 |
| 150 gals. & over | 7.25 |

| | Stanolex No. 1 | Stanolex Furnace Oil |
|---|---|---|
| 1-99 gals. | 8.5 | 8.5 |
| 100-149 gals. | 7.5 | 7.5 |
| 150-399 gals. | 7.25 | 7.25 |
| 400 gals. & over | 6.75 | 6.75 |

| | Stanolex Fuel Oil A | Stanolex Fuel Oil B |
|---|---|---|
| 1-99 gals. | 7.75 | 7.75 |
| 100-399 gals. | 6.75 | 6.75 |
| 400-749 gals. | 5.75 | 5.75 |
| 750 gals. & over | 5 | 5 |

| | Stanolex Bunker C Fuel Oil |
|---|---|
| 1-399 gals. | 6.25 |
| 400-999 gals. | 5.25 |
| 1000 gals. & over | 4.25 |

| **Other Points:** | Stanolex No. 1 | Stanolex Furnace Oil |
|---|---|---|
| Indianapolis | | |
| 1-99 gals. | | *8.7 |
| 100 gals. & over | | *7.7 |
| Detroit | | |
| 1-99 gals. | | 7.8 |
| 100 gals. & over | | 6.8 |
| Milwaukee | | |
| 1-99 gals. | 9.2 | 8.7 |
| 100 gals. & over | 8.2 | 7.7 |
| Minneapolis | | |
| 1-99 gals. | 8.2 | 8.2 |
| 100 gals. & over | | 7.2 |
| 100-199 gals. | 7.7 | |
| 200 gals. & over | 7.2 | |
| St. Louis | | |
| 1-99 gals. | 8 | 7.5 |
| 100 gals. & over | 7 | 6.5 |
| Kansas City | | |
| 1-49 gals. | 7.8 | |
| 50 gals. & over | 6.8 | |
| 1-99 gals. | | 7.8 |
| 100 gals. & over | | 6.8 |

*Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 1c state tax; Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1.5c federal tax and state taxes.

## S. O. Nebraska

**Standard Red Crown Gasoline (*Regular Grade*)**

| | T.W. | Dealer | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Omaha | 10.5 | 7.9 | 6.5 | 9.8 |
| McCook | 12 | 8.9 | 6.5 | 9.5 |
| Norfolk | 11.9 | 10.4 | 6.5 | 10.3 |
| North Platte | 12.3 | 10.8 | 6.5 | 10.7 |
| Scottsbluff | 11.9 | 9 | 6.5 | 10 |

## S. O. Louisiana

**Esso Gasoline (*Regular Grade*)**

| | Consumer Tank Car | Dealer T.w. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| New Orleans, La. | 6.75 | 9.25 | 8.5 | *9 |
| Baton Rouge, La. | 6.75 | 9.25 | 8.5 | *9.5 |
| Alexandria, La. | 6.75 | 9.25 | 8.5 | *9.5 |
| Lafayette, La. | 7 | 9.5 | 8.5 | *9 |
| Lake Charles, La. | 7 | 9.5 | 8.5 | *9 |
| Shreveport, La. | 6 | 8.5 | 8.5 | *9 |
| Knoxville, Tenn. | 9.5 | 12 | 8.5 | 12.5 |
| Memphis, Tenn. | 7.75 | 10.25 | 8.5 | 10.5 |
| Chattanooga, Tenn. | 10 | 11 | 8.5 | 11 |
| Nashville, Tenn. | 9.25 | 11 | 8.5 | 10 |
| Bristol, Tenn. | 9.75 | 10.25 | 8.5 | 12 |
| Little Rock, Ark. | 7.25 | 9.75 | 8 | 10 |

*Louisiana kerosine prices are ex 1c state tax.
Discounts:
Esso Gasoline—To undivided dealers, 0.5c off dealer t.w.

## Humble Oil & Refining Co.

**Humble Motor Fuel (*Regular Grade*)**
**Thriftane (*Third Grade*)**

| | Humble *Tank Wagon | Humble Retail | Thriftane *Tank Wagon | Thriftane Retail | Gasoline Taxes |
|---|---|---|---|---|---|
| Dallas, Tex. | 7.5 | 11.5 | 6 | 9 | 5.5 |
| Ft. Worth, Tex. | 7.5 | 11.5 | 6 | 9 | 5.5 |
| Houston, Tex. | 8 | 12 | 6 | 9 | 5.5 |
| San Antonio, Tex. | 8 | 12 | 6 | 6 | 5.5 |

| | Kerosine *Tank Wagon | Kerosine Retail |
|---|---|---|
| Dallas, Tex. | 7 | 11 |
| Ft. Worth, Tex. | 7 | 11 |
| Houston, Tex. | 8 | 11 |
| San Antonio, Tex. | 7 | 10 |

| 74 Oct. Aviation Gasoline, Clear | Tank Car |
|---|---|
| FOB Baytown, Tex. | 8.5 |

*To all classes of dealers & consumers.

## The Texas Co.

| | Gasoline—Dealer Fire-Chief (*Regular*) | T.W. Indian (*3rd Grade*) | Gasoline Taxes |
|---|---|---|---|
| Dallas, Tex. | 7.5 | 6 | 5.5 |
| Ft. Worth, Tex. | 7.5 | 6 | 5.5 |
| Wichita Falls, Tex. | 8 | 6 | 5.5 |
| Amarillo, Tex. | 8 | 6 | 5.5 |
| Tyler, Tex. | 8 | 6 | 5.5 |
| El Paso, Tex. | 10.5 | 9.5 | 5.5 |
| San Angelo, Tex. | 8 | 6 | 5.5 |
| Waco, Tex. | 8 | 6 | 5.5 |
| Austin, Tex. | 8 | 6 | 5.5 |
| Houston, Tex. | 8 | 6 | 5.5 |
| San Antonio, Tex. | 8 | 6 | 5.5 |
| Port Arthur, Tex. | 8 | 6 | 5.5 |

## Continental Oil Co.

| | Conoco Bronz-z-z (*Regular*) †Tank Wagon | Demand (*3rd Grade*) †Tank Wagon | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Denver, Col. | 10 | 9 | 5.5 | 11 |
| Grand Junction, Col. | 12.5 | 11.5 | 5.5 | 12.5 |
| Pueblo, Col. | 9.5 | 8.5 | 5.5 | 9.5 |
| Casper, Wyo. | 11.5 | 10.5 | 5.5 | 12 |
| Cheyenne, Wyo. | 10.5 | 9.5 | 5.5 | 11.5 |
| Billings, Mont. | 11.5 | 10.5 | 6.5 | 12.5 |
| Butte, Mont. | 10.5 | 9.5 | 6.5 | 13.5 |
| Great Falls, Mont. | 10.5 | 9.5 | 6.5 | 12.5 |
| Helena, Mont. | 10.5 | 9.5 | 6.5 | 13 |
| Salt Lake City, Utah. | 13.5 | 12.5 | 5.5 | 14.5 |
| Boise, Ida. | 13.6 | 12.6 | 6.5 | 16.5 |
| Twin Falls, Ida. | 14.6 | 13.6 | 6.5 | 17 |
| Albuquerque, N. M. | 10.5 | 9.5 | *7 | 10 |
| Roswell, N. M. | 8.5 | 7.5 | *7 | 8.5 |
| Santa Fe, N. M. | 10.5 | 9.5 | *7.5 | 10 |
| Ft. Smith, Ark. | 8.5 | 5.75 | *7 | 6.5 |
| Little Rock, Ark. | 9.25 | 6.15 | 8 | 8 |
| Texarkana, Ark. | 8.5 | 6.5 | *5.5 | 6 |
| Muskogee, Okla. | 8.5 | 7.5 | 7 | 8 |
| Oklahoma City, Okla. | 8 | 7.5 | 7 | 8 |
| Tulsa, Okla. | 8 | 7.5 | 7 | 8 |

*Taxes: In gasoline tax column are included these city taxes—Albuquerque, & Roswell, 0.5c; Santa Fe, 1c. Texas 1c state tax applies within city limits of Texarkana, Ark.; Okla. 5.5c state tax applies within city limits of Ft. Smith, Ark.
†To consumers & dealers.
Discounts: To dealers only—Cheyenne 1.5c on Bronz-z-z & Demand.

## S. O. California

**Standard Gasoline (*Regular Grade*)**
**Flight Gasoline (*Third Grade*)**

| | Standard Tank Truck | Standard Retail | Flight Tank Truck | Flight Retail | Gasoline Taxes |
|---|---|---|---|---|---|
| San Francisco, Cal. | 13 | 14 | 11 | 12 | 4.5 |
| Los Angeles, Cal. | 12.5 | 13.5 | 10.5 | 11.5 | 4.5 |
| Fresno, Cal. | 14 | 15 | 12 | 13 | 4.5 |
| Phoenix, Ariz. | 15 | 16 | 12 | 13 | 6.5 |
| Reno, Nev. | 15 | 16 | 13 | 14 | 5.5 |
| Portland, Ore. | 13.5 | 14.5 | 11.5 | 12.5 | 6.5 |
| Seattle, Wash. | 13.5 | 14.5 | 11.5 | 12.5 | 6.5 |
| Spokane, Wash. | 15 | 16 | 13 | 14 | 6.5 |
| Tacoma, Wash. | 13.5 | 14.5 | 11.5 | 12.5 | 6.5 |

| | Stanavo Tank Truck | Aviation Gasoline Taxes | Kerosine Tank Truck |
|---|---|---|---|
| San Francisco, Cal. | 15.5 | 4.5 | 11.5 |
| Los Angeles, Cal. | 15 | 4.5 | 10 |
| Fresno, Cal. | 16.5 | 4.5 | 12.5 |
| Phoenix, Ariz. | 17.5 | 6.5 | 12.5 |
| Reno, Nev. | 17.5 | 5.5 | 13.5 |
| Portland, Ore. | 16 | 6.5 | 13.5 |
| Seattle, Wash. | 16 | 6.5 | 13.5 |
| Spokane, Wash. | 19 | 6.5 | 16.5 |
| Tacoma, Wash. | 16 | 6.5 | 13.5 |

Discounts:
To Resale & Commercial Consumers—3c off posted tank truck tax included price on Standard & Stanavo Aviation, 2c off on Flight. Deliveries less than 40 gals. to commercial consumer trade, 1c a gal. above posted tank truck tax included price, except single deliveries to Marine trade only which are billed at posted tank truck tax included price less 3c for Standard & Stanavo Aviation, and less 2c for Flight.
Kerosine—Tank car and truck & trailer deliveries, 3c off posted tank truck price; plant stem deliveries to jobbers, 2.5c off posted tank truck price.

## Canada

**PRICES OF IMPERIAL OIL, LTD.**

Per Imperial Gallon, which is 1.2 U. S. Gallons

**3-Star Imperial Gasoline (*Regular Grade*)**

| | Gasoline T.W. | *Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|
| Hamilton, Ont. | 16.5 | 11 | 17 |
| Toronto, Ont. | 16.5 | 11 | 17 |
| Brandon, Man. | 21 | 10 | 23 |
| Winnipeg, Man. | 20.5 | 10 | 22.5 |
| Regina, Sask. | 18 | 10 | 20 |
| Saskatoon, Sask. | 20.8 | 10 | 22.8 |
| Edmonton, Alta. | 18.9 | 10 | 20.9 |
| Calgary, Alta. | 16 | 10 | 18 |
| Vancouver, B. C. | 16 | 10 | 23 |
| Montreal, Que. | 16 | 11 | 16.5 |
| St. John, N. B. | 14.50 | 13 | 18 |
| Halifax, N. S. | 14.50 | 13 | 18 |

Discounts: Gasoline—Maritime Provinces—undivided & divided dealers, t.w. price; British Columbia—undivided and divided dealers, 2c off t.w. price; balance of territory—undivided dealers, 1c off t.w. price, divided dealers, t.w. price.
*Includes 3c Federal, and Provincial taxes.

### Tank Wagon Price Changes

(These changes have been made in price tables)

*S. O. Indiana—Stanolind Gasoline:*

Joliet dealer up 0.6c June 28. Evansville dealer up 0.3c June 26.
Mason City dealer cut 0.6c June 11; up 0.6c June 26.

*The Texas Co.—Fire Chief & Indian Gasolines:*

Waco up 0.5c July 1.

# CRUDE OIL PRICES

*Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.*

## EASTERN & CENTRAL STATES FIELDS

### PENNSYLVANIA GRADE

**Posted by Jos. Seep Purch. Agency** (June 18, '41)
Bradford-Allegany ..... $2.75
Southwest Penna ..... $2.40
Eureka (West Va.) ..... $2.34
Corning, O. (May 27, '41) ..... $1.31

**Posted by Tide Water Assoc. Oil Co.** (June 18, '41)
Bradford-Allegany ..... $2.75

**Posted by The Pennzoil Co.** (June 18, '41)
National Transit ..... $2.68*

**Posted by Valvoline Pipe Lines** (June 18, '41)
Bradford (Elk & McKean Counties, Pa.) ..... $2.75
Warren, Forest, Venango, Clarion & Butler Counties, Pa. ..... $2.68
Allegheny, Beaver, Washington & Greene Counties, Pa ..... $2.40
West Virginia ..... $2.34
South Eastern Ohio ..... $2.30

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $2.63 per bbl. at well.

### MICHIGAN

**Posted by Pure Oil Co.** (May 27, '41)
Midland, Midland County ..... $1.44
Sherman ..... $1.39

**Posted by Simrall Corp.** (May 27, '41)
Greendale, Porter, Vernon, Crystal & Wise ..... $1.44
Buckeye, Bentley, Edenville, Beaverton & Monitor (sweet crude type) ..... $1.42
Freeman, Redding, Lincoln & Winterfield ..... $1.39
West Branch-Arenac ..... $1.24
Hamilton-Grout ..... $1.29

**Posted by Sohio Corp. (Mich. Div.)**
Traverse crude in Allegan, Kent, Ottawa & Van Buren Cos. (June 2, '41) ..... $1.45
Trenton crude, Monroe Co. (June 2, '41) ..... $1.39

**Posted by Bay Pipe Line Corp.** (May 27, '41)
Saginaw & Wise ..... $1.44
Buckeye, Bentley & Kawkawlin ..... $1.42
Clare ..... $1.11
Adams (June 1, '41) $1.27

### ILLINOIS-INDIANA-KENTUCKY-OHIO

**Posted by Sohio Corp.** (May 21, '41)
Illinois Basin, including Griffin pool ..... $1.37
Carmi Storms, Ill. area ..... $1.32
Birk City, Ky. area ..... $1.32
Corydon, Ky. area, Henderson ..... $1.32

**Posted by Ohio Oil Co.** (May 21, '41)
Illinois Basin ..... $1.37
Eastern Ill. & Western Ind. ..... 1.22

**Posted by Carter Oil Co.** (May 21, '41)
Louden, Fayette Co. Ill. ..... $1.37

**Posted by Mohawk Oil Lines, Inc.** (May 21, '41)
Southern Illinois ..... $1.37

**Posted by Ashland Oil & Transp. Co.**
**Somerset oil in Ash. Lines, Ky.:** (June 19, '41)
Big Sandy River ..... $1.38
Kentucky River ..... $1.43

**Posted by Owensboro-Ashland Co.**
Owensboro, Ky. area (May 21, '41) ..... $1.32

**Posted by S. O. Ohio (May 28, '41)**
Lima, O. ..... $1.17
Cleveland, Lodi & Chatham (O.) areas ..... $1.22

## MID-CONTINENT

### OKLAHOMA-KANSAS-NORTH TEXAS

**(See below for companies posting and dates)**

| Gravity | Schedule No. 1 | Schedule No. 2 | Schedule No. 3 | Schedule No. 4 |
|---|---|---|---|---|
| Below 21 | $0.85 | $0.75 | $0.70 | $0.78 |
| 21-21.9 | .87 | .78 | .73 | .80 |
| 22-22.9 | .89 | .81 | .76 | .82 |
| 23-23.9 | .91 | .84 | .79 | .84 |
| 24-24.9 | .93 | .87 | .82 | .86 |
| 25-25.9 | .95 | .90 | .85 | .88 |
| 26-26.9 | .97 | .93 | .88 | .90 |
| 27-27.9 | .99 | .96 | .91 | .92 |
| 28-28.9 | 1.01 | .99 | .94 | .94 |
| 29-29.9 | 1.03 | 1.02 | .97 | .96 |
| 30-30.9 | 1.05 | 1.05 | 1.00 | .98 |
| 31-31.9 | 1.07 | 1.07 | 1.02 | 1.00 |
| 32-32.9 | 1.09 | 1.09 | 1.04 | 1.02 |
| 33-33.9 | 1.11 | 1.11 | 1.06 | 1.04 |
| 34-34.9 | 1.13 | 1.13 | 1.08 | 1.06 |
| 35-35.9 | 1.15 | 1.15 | 1.10 | 1.08 |
| 36-36.9 | 1.17 | 1.17 | 1.12 | 1.10 |
| 37-37.9 | 1.19 | 1.19 | 1.14 | 1.12 |
| 38-38.9 | 1.21 | 1.21 | 1.16 | 1.14 |
| 39-39.9 | 1.23 | 1.23 | 1.18 | 1.16 |
| 40 & above | 1.25 | 1.25 | 1.20 | 1.18 |

**Above schedules posted by:**

No. 1: **S. O. Indiana** May 20, '41 in Okla. & Kans. **Sinclair-Prairie** May 20, '41 in Okla. & Kans. beginning with 25-25.9. **Continental** May 19, '41 in Okla. & Kans. beginning with Below 29 at $1.01. **Texaco** May 19, '41 in Okla. & Kans. beginning with 28-28.9 at $1.01.

No. 2: **Carter** May 20, '41 in Okla. **Shell** May 19, '41 in Okla. & Kans. (exclusive of Carter Co., Okla.) **Magnolia** May 21, '41 in Okla.

No. 3: **Shell** May 19, '41 in Carter Co., Okla.

No. 4: **Stanolind** May 20, '41 in N. Texas. **Magnolia** May 21, '41 in N. & N. Central Texas. **Sinclair-Prairie** May 21, '41 in N. Central Texas. **Continental** May 21, '41 in N. Texas. **Texaco** May 21, '41 in N. & N. Central Texas. **Magnolia, Sinclair-Prairie & Continental** schedules begin with Below 29 at $0.94. **Texaco** schedule begins with 28-28.9 at $0.94.

## TEXAS & NEW MEXICO FIELDS

**Posted by Humble Oil & Refining Co.**—(May 21, 1941)

| Gravity | Refugio | Texas Gulf Coast | Mirando | Anahuac | Dickinson | East Central Texas | West Central Texas | Panhandle, W. Texas & New Mex. | Hawkins Texas |
|---|---|---|---|---|---|---|---|---|---|
| Below 20 | $1.08 | $1.06 | $1.03 | $0.98 | $0.93 | .... | .... | $0.70 | $0.80 |
| 20-20.9 | 1.10 | 1.08 | 1.05 | 1.00 | .95 | .... | .... | .72 | .82 |
| 21-21.9 | 1.12 | 1.10 | 1.07 | 1.02 | .97 | .... | .... | .74 | .84 |
| 22-22.9 | 1.14 | 1.12 | 1.09 | 1.04 | .99 | .... | .... | .76 | .86 |
| 23-23.9 | 1.16 | 1.14 | 1.11 | 1.06 | 1.01 | .... | .... | .78 | .88 |
| 24-24.9 | 1.18 | 1.16 | 1.13 | 1.08 | 1.03 | .... | .... | .80 | .90 |
| 25 & above | .... | .... | .... | .... | .... | .... | .... | .... | .92 |
| 25-25.9 | 1.20 | 1.18 | 1.15 | 1.10 | 1.05 | $0.97 | $0.88 | .82 | .... |
| 26-26.9 | 1.22 | 1.20 | 1.17 | 1.12 | 1.07 | .99 | .90 | .84 | .... |
| 27-27.9 | 1.24 | 1.22 | 1.19 | 1.14 | 1.09 | 1.01 | .92 | .86 | .... |
| 28-28.9 | 1.26 | 1.24 | 1.21 | 1.16 | 1.11 | 1.03 | .94 | .88 | .... |
| 29-29.9 | 1.28 | 1.26 | 1.23 | 1.18 | 1.13 | 1.05 | .96 | .90 | .... |
| 30-30.9 | 1.30 | 1.28 | 1.25 | 1.20 | 1.15 | 1.07 | .98 | .92 | .... |
| 31-31.9 | 1.32 | 1.30 | 1.27 | 1.22 | 1.17 | 1.09 | 1.00 | .94 | .... |
| 32-32.9 | 1.34 | 1.32 | 1.29 | 1.24 | 1.19 | 1.11 | 1.02 | .96 | .... |
| 33-33.9 | 1.36 | 1.34 | 1.31 | 1.26 | 1.21 | 1.13 | 1.04 | .98 | .... |
| 34-34.9 | 1.38 | 1.36 | 1.33 | 1.28 | 1.23 | 1.15 | 1.06 | 1.00 | .... |
| 35-35.9 | 1.40 | 1.38 | 1.35 | 1.30 | 1.25 | 1.17 | 1.08 | 1.02 | .... |
| 36-36.9 | 1.42 | 1.40 | 1.37 | 1.32 | 1.27 | 1.19 | 1.10 | 1.04 | .... |
| 37-37.9 | 1.44 | 1.42 | 1.39 | 1.34 | 1.29 | 1.21 | 1.12 | 1.06 | .... |
| 38-38.9 | 1.46 | 1.44 | 1.41 | 1.36 | 1.31 | 1.23 | 1.14 | 1.08 | .... |
| 39-39.9 | 1.48 | 1.46 | 1.43 | 1.38 | 1.33 | 1.25 | 1.16 | 1.10 | .... |
| 40 & above | 1.50 | 1.48 | 1.45 | 1.40 | 1.35 | 1.27 | 1.18 | 1.12 | .... |

**Refugio:** Includes crude purchased in East White Point, Greta, Melon Creek, O'Connor-McFaddin, Plymouth, Saxet, Taft, & Tom O'Connor fields.

**Texas Gulf Coast:** Includes crude purchased in Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa New, Raccoon Bend, South Thompsons, Sugarland, Thompsons, & Webster fields.

**Mirando:** Includes crude purchased in Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (North & South), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, & Tesoro fields.

**Anahuac:** Includes crude purchased in Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull (Old & New), Pierce Junction, Red Fish Reef, & Turtle Bay fields.

**Dickinson:** Includes crude purchased in Dickinson, Gillock, Hardin, League City, & Rowan fields.

**East Central Texas:** Includes crude purchased in Anderson, Cherokee, Limestone, & Navarro Counties, and Navarro Crossing field.

**West Central Texas:** Includes crude purchased in Brown, Callahan, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, & Throckmorton Counties.

**Panhandle, West Texas & New Mexico:** Includes crude purchased in Carson, Gray, Hutchinson & Wheeler Counties; Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler, & Yoakum Counties, Texas; Lea County, N. M.

**Hawkins:** Includes crude purchased in Hawkins Field, Wood County, Texas.

**Conroe** ..... $1.43
**Tomball** ..... 1.40
**Van** ..... 1.08
**Talco** ..... 0.79
**East Texas & Flag Lake** ..... $1.25
**Flour Bluff, E. Flour Bluff** ..... 1.33
**Salt Flat, N. Salt Flat** ..... 1.14
**Darst Creek, Hilbig, Carroll** ..... 1.14
**Clark, Zoboroski** ..... $1.14
**Alice, Benavides (N. Sweden), Sun** ..... 1.35
**Ben Bolt, Clark-Muil, Tom Graham** ..... 1.35
**Yates (Pecos)** ..... 0.95
**La Rosa** ..... 1.33

### MAGNOLIA PETROLEUM CO.

(May 21, '41)

**Panhandle, Tex.**—Same as Humble except Magnolia begins with Below 29 at $0.88.

**West Texas**—In Crane, Upton, Howard, Glasscock, Mitchell, Winkler, Cochran, Hockley, Yoakum & Gaines Cos.—Same as Humble except Magnolia begins with Below 25 at $0.80.

**N. Mexico**—In Lea Co.—Same as Humble except Magnolia begins with Below 25 at $0.80 & ends with 36 & above at $1.04.

**Cass & Panola Cos., Tex.**—Below 25 at $0.88, plus 2c per degree of gravity to 40 & above at $1.20.

**Mirando, Tex.**—Same as Humble.

**East Texas** ..... $1.25
**Darst Creek** ..... 1.14
**Luling** ..... 1.05
**Talco** ..... .79
**Lytton Springs** ..... $1.17
**Cleveland-Liberty Co.** ..... 1.26
**Tomball** ..... 1.40

### SINCLAIR-PRAIRIE OIL MARKETING CO.

**Texas Panhandle**—(May 23, '41)—Below 25 at $0.83, plus 2c per degree of gravity to 40 & above at $1.15.
**West Texas & New Mexico**—(May 30, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.80.
**Texas Gulf Coast**—(May 21, '41)—Same as Humble.
**Mexia District, Texas**—(May 30, '41)—Same as Humble, East Central Texas, except Sinclair-Prairie also posts Below 25 at $0.95.
**East Texas**—(May 21, '41) ..... $1.25
**Long Lake, Texas**—(May 21, '41) ..... 1.23

### STANOLIND OIL PURCHASING CO.

(May 21, '41)

**Clinton, Tex.**—Same as Humble, Tex. Gulf Coast except Stanolind begins with Below 21 at $1.08.

**Fairbanks, N. Houston & Rosslyn, Tex.**—Same as Humble Dickinson schedule.

**E. Texas** ..... $1.25 **Satsuma & Tomball, Tex.** $1.40

### STANOLIND OIL & GAS CO.

(May 21, '41)

**W. Beaumont & Spindletop** (Jefferson Co., Tex.) **& High Island** (Galveston Co., Tex.)—Same as Humble Tex. Gulf Coast.

**Hendrick & Henderson** (Winkler Co., Tex.)—Same as Humble Panhandle except Stanolind begins with Below 26 at $0.82.

### THE TEXAS CO.

(May 21, '41)

**Panhandle, Tex.**—34-34.9, $1.03; plus 2c per degree of gravity to 40 & above at $1.15.

**W. Texas & Lea Co., N. M.**—Same as Humble except Texaco posts $0.78 for 23.9 & below and ends with 36 & above at $1.04.

**Texas Gulf Coast**—Same as Humble except Texaco ends with 34 & above at $1.36.

**Duval, Mirando, Tex.**—Same as Humble Mirando except Texaco ends with 28-28.9 at $1.21.

**Refugio, Tex.**—Same as Humble except Texaco ends with 28-28.9 at $1.26.

**East Texas** ..... $1.25
**Darst Creek, Tex.** 1.14
**Cass Co., Tex.** ..... $1.20
**Conroe, Tex** ..... 1.43
**Hockley & Cochran Cos., Tex.** ..... .87

### SHELL OIL CO., INC.

(May 20, '41)

**West Texas & Lea Co., N. M.**—Same as Humble except Shell ends with 36 & above at $1.04.

**Fisher Co., Tex.**—Same as Humble W. Central Texas except Shell begins with Below 25 at $0.86.

**East Texas** ..... $1.25
**Pecos Co., Tex., except Yates Shallow pool** ..... $0.95
**Livingston field, Polk Co., Tex.** 1.25
**Pecos Co., Yates Shallow pool** ..... .82

### CONTINENTAL OIL CO.

(May 21, '41)

**Carson & Hutchinson Cos., Tex.**—Same as Humble Panhandle except Continental begins with Below 29 at $0.88.

**Mirando, Tex.**—Same as Humble except Continental begins with Below 21 at $1.05.

**Wade City & Clara Driscoll, Tex.**—Same as Humbel Refugio except Continental begins with Below 21 at $1.10.

**Alfred & Magnolia City, Tex.,** $1.35.
**Eddy Co., N. M.**—May 30, '41—Same as Humble New Mexico schedule except Continental begins with Below 29 at $0.88.

### PAN AMERICAN PRODUCTION CO.

(May 21, '41)

**Hastings & S. Houston, Tex.**—Same as Humble Tex. Gulf Coast except Pan Am. begins with Below 21 at $1.08.

**Gillock, Tex.**—Same as Humble Dickinson except Pan Am. begins with Below 21 at $0.95.

**East Texas** ..... $1.25
**Cayuga, Tex.** ..... .90

# CRUDE OIL PRICES

*Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.*

## CALIFORNIA

**Posted by S.O California, May 23, 1941**

*(All gravities above those quoted take highest price offered in that field)*

| Gravity | Signal Hill (Long Beach) | Wilmington | El Segundo | Seal Beach | Huntington Beach | Inglewood | Olinda Brea Canon | Athens-Rosecrans | Torrance | Richfield | Whittier East Coyote (La Habra) | Montebello | West Coyote Hills | Santa Fe Springs | Greeley, Canal, Wasco | Coles Levee | Mountain View | Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area | Lost Hills | Coalinga | Gravity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14-14.9 | .... | $0.68 | .... | .... | $0.71 | .... | $0.70 | .... | $0.70 | $0.70 | $0.70 | $0.72 | .... | .... | .... | .... | .... | $0.73 | $0.73 | $0.73 | 14-14.9 |
| 15-15.9 | .... | .71 | .... | .... | .75 | $0.76 | .72 | .... | .72 | .71 | .72 | .72 | .... | .... | .... | .... | .... | .73 | .73 | .73 | 15-15.9 |
| 16-16.9 | .... | .74 | $0.79 | .... | .79 | .79 | .75 | .... | .74 | .73 | .75 | .72 | .... | .... | .... | .... | .... | .73 | .75 | .73 | 16-16.9 |
| 17-17.9 | .... | .78 | .82 | .... | .82 | .82 | .78 | .... | .77 | .76 | .78 | .72 | .... | .... | .... | .... | .... | .75 | .78 | .73 | 17-17.9 |
| 18-18.9 | $0.80 | .82 | .86 | .... | .86 | .85 | .81 | .... | .80 | .79 | .82 | .74 | .... | .... | .... | .... | .... | .78 | .81 | .73 | 18-18.9 |
| 19-19.9 | .84 | .86 | .90 | .... | .89 | .88 | .85 | .... | .83 | .82 | .85 | .77 | .... | .... | .... | .... | $0.73 | .81 | .84 | .75 | 19-19.9 |
| 20-20.9 | .88 | .90 | .94 | .... | .93 | .92 | .88 | .... | .86 | .85 | .89 | .80 | .... | .... | .... | .... | .76 | .85 | .87 | .77 | 20-20.9 |
| 21-21.9 | .92 | .94 | .98 | .... | .96 | .95 | .91 | .... | .89 | .89 | .92 | .84 | .... | .... | .... | .... | .79 | .90 | .90 | .80 | 21-21.9 |
| 22-22.9 | .96 | .98 | 1.02 | $0.88 | .99 | .98 | .95 | .... | .93 | .93 | .96 | .87 | .... | .... | .... | .... | .83 | .94 | .93 | .83 | 22-22.9 |
| 23-23.9 | 1.00 | 1.02 | 1.05 | .92 | 1.02 | 1.01 | .98 | .... | .97 | .98 | 1.00 | .91 | .... | .... | .... | .... | .87 | .99 | .96 | .86 | 23-23.9 |
| 24-24.9 | 1.03 | 1.06 | 1.07 | .97 | 1.05 | 1.04 | 1.01 | .... | 1.01 | 1.02 | 1.03 | .94 | $0.99 | .... | .... | .... | .90 | 1.03 | .99 | .89 | 24-24.9 |
| 25-25.9 | 1.07 | 1.09 | 1.10 | 1.01 | 1.08 | 1.07 | 1.04 | .... | 1.05 | 1.06 | 1.07 | .98 | 1.02 | .... | .... | .... | .94 | 1.07 | 1.01 | .92 | 25-25.9 |
| 26-26.9 | 1.11 | 1.12 | 1.12 | 1.06 | 1.11 | 1.10 | 1.08 | .... | 1.09 | 1.10 | 1.11 | 1.01 | 1.06 | .... | .... | .... | .97 | 1.11 | 1.04 | .95 | 26-26.9 |
| 27-27.9 | 1.15 | 1.15 | 1.15 | 1.10 | 1.14 | 1.14 | 1.11 | .... | 1.13 | .... | 1.15 | 1.05 | 1.10 | $1.04 | .... | .... | 1.01 | 1.15 | 1.07 | .98 | 27-27.9 |
| 28-28.9 | 1.18 | 1.18 | 1.17 | 1.15 | 1.17 | 1.17 | 1.14 | .... | 1.17 | .... | .... | 1.08 | 1.13 | 1.08 | .... | .... | 1.04 | 1.19 | 1.10 | 1.00 | 28-28.9 |
| 29-29.9 | 1.20 | 1.21 | .... | 1.19 | 1.20 | 1.20 | .... | $1.17 | .... | .... | .... | 1.12 | 1.17 | 1.12 | .... | .... | 1.07 | 1.24 | 1.13 | 1.02 | 29-29.9 |
| 30-30.9 | 1.23 | 1.24 | .... | .... | 1.23 | 1.22 | .... | 1.21 | .... | Elwood | .... | 1.15 | 1.21 | 1.15 | $1.01 | $1.09 | 1.10 | 1.28 | 1.16 | 1.04 | 30-30.9 |
| 31-31.9 | .... | .... | .... | .... | .... | 1.24 | .... | 1.25 | .... | Terrace | .... | 1.19 | 1.24 | 1.19 | 1.04 | 1.12 | 1.14 | .... | .... | 1.06 | 31-31.9 |
| 32-32.9 | .... | .... | .... | .... | .... | .... | .... | 1.29 | .... | F.o.b. Ship | .... | 1.23 | 1.28 | 1.23 | 1.07 | 1.14 | 1.17 | .... | .... | 1.09 | 32-32.9 |
| 33-33.9 | .... | .... | .... | .... | .... | .... | .... | 1.32 | .... | $1.22 | .... | 1.27 | .... | 1.26 | 1.10 | 1.17 | .... | .... | .... | 1.11 | 33-33.9 |
| 34-34.9 | Kettleman Hills | | | | | | | 1.36 | .... | 1.25 | .... | 1.31 | .... | 1.30 | 1.13 | 1.20 | .... | .... | .... | 1.13 | 34-34.9 |
| 35-35.9 | .... | $1.23 | .... | .... | .... | .... | .... | .... | .... | 1.28 | .... | 1.35 | .... | .... | 1.16 | 1.22 | .... | .... | .... | .... | 35-35.9 |
| 36-36.9 | .... | 1.26 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.39 | .... | .... | 1.19 | 1.25 | .... | .... | .... | .... | 36-36.9 |
| 37-37.9 | .... | 1.29 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.43 | .... | .... | 1.22 | .... | .... | .... | .... | .... | 37-37.9 |
| 38-38.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.47 | .... | .... | 1.25 | .... | .... | .... | .... | .... | 38-38.9 |
| 39-39.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.51 | .... | .... | .... | .... | .... | .... | .... | .... | 39-39.9 |
| 40-40.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.53 | .... | .... | .... | .... | .... | .... | .... | .... | 40-40.9 |

**Playa Del Rey:** (FOB Standard Pipe Line) 20-20.9, $0.80; 21-21.9, $0.84; 22-22.9, $0.87.
**Wheeler Ridge:** 22-22.9, $0.76; 23-23.9, $0.80; 24-24.9, $0.83.
**Newhall, Kern River, Kern Front, McKittrick & Round Mountain:** 14-14.9 $).73.

## LOUISIANA-ARKANSAS

**Posted by S. O. Louisiana, May 22, '41**

| Gravity | Atlanta, Ark. et al. | Caddo, La. et al. | Rodessa, La. et al. | Bunkie, La. et al. | Darrow, La. et al. | University, La. (Baton Rouge) |
|---|---|---|---|---|---|---|
| 40 & above | $1.08 | $1.18 | $1.20 | $1.30 | $1.30 | .... |
| 39-39.9 | 1.06 | 1.16 | 1.18 | 1.28 | 1.28 | .... |
| 38-38.9 | 1.04 | 1.14 | 1.16 | 1.26 | 1.26 | .... |
| 37-37.9 | 1.02 | 1.12 | 1.14 | 1.24 | 1.24 | .... |
| 36-36.9 | 1.00 | 1.10 | 1.12 | 1.22 | 1.22 | .... |
| 35-35.9 | .98 | 1.08 | 1.10 | 1.20 | 1.20 | .... |
| 35 & above | .... | .... | .... | .... | .... | $1.36 |
| 34-34.9 | .96 | 1.06 | 1.08 | 1.18 | 1.18 | 1.34 |
| 33-33.9 | .94 | 1.04 | 1.06 | 1.16 | 1.16 | 1.32 |
| 32-32.9 | .92 | 1.02 | 1.04 | 1.14 | 1.14 | 1.30 |
| 31-31.9 | .90 | 1.00 | 1.02 | 1.12 | 1.12 | 1.28 |
| 30 & below | .... | .... | .... | .... | .... | 1.26 |
| 30-30.9 | .88 | .98 | 1.00 | 1.10 | 1.10 | .... |
| 29-29.9 | .86 | .96 | .98 | 1.08 | 1.08 | .... |
| 28-28.9 | .84 | .94 | .96 | 1.06 | 1.06 | .... |
| 27-27.9 | .82 | .92 | .94 | 1.04 | 1.04 | .... |
| 26-26.9 | .80 | .90 | .92 | 1.02 | 1.02 | .... |
| 25-25.9 | .78 | .88 | .90 | 1.00 | 1.00 | .... |
| Below 25 | .... | .86 | .88 | .98 | .... | .... |
| 24-24.9 | .76 | .... | .... | .... | .98 | .... |
| 23-23.9 | .74 | .... | .... | .... | .96 | .... |
| 22-22.9 | .72 | .... | .... | .... | .94 | .... |
| 21-21.9 | .70 | .... | .... | .... | .92 | .... |
| Below 21 | .68 | .... | .... | .... | .90 | .... |

**Atlanta** schedule includes Buckner, Lewisville, Magnolia, Village & Schuler (Jones Sand), Ark.

**Caddo** schedule includes De Soto, Sabine, Fouke, Homer, Miller Co., Nebo & Sugar Creek.

**Rodessa** schedule includes Cotton Valley & Shreveport (Cross Lake).

**Bunkie** schedule includes Eola, Olla, & South Olla.

**Darrow** schedule includes Bayou Mallet, Choctaw, Jeanerette, Lirette, N. & S. Crowley, Port Allen, Port Barre, Potash, Roanoke, & St. Martinville.

**Big Creek, Dorcheat, McKamie Distillates** (Sour) ..... $1.15
**Heavy Smackover Crude** ..... .83
**Cotton Valley Distillate** ..... 1.30
**Cotton Valley** (Holloway Sand Crude) ..... 1.25
**Lisbon Distillate** ..... 1.20

*(Continued next column)*

## LOUISIANA-ARKANSAS (Cont'd)

**Posted by Shell Oil Co., Inc.** (May 20, '41)

| Gravity | Iowa | Roanoke | Gibson |
|---|---|---|---|
| Below 20 | $0.99 | $0.94 | $0.89 |
| 20-20.9 | 1.01 | .96 | .91 |
| 21-21.9 | 1.03 | .98 | .93 |
| 22-22.9 | 1.05 | 1.00 | .95 |
| 23-23.9 | 1.07 | 1.02 | .97 |
| 24-24.9 | 1.09 | 1.04 | .99 |
| 25-25.9 | 1.11 | 1.06 | 1.01 |
| 26-26.9 | 1.13 | 1.08 | 1.03 |
| 27-27.9 | 1.15 | 1.10 | 1.05 |
| 28-28.9 | 1.17 | 1.12 | 1.07 |
| 29-29.9 | 1.19 | 1.14 | 1.09 |
| 30-30.9 | 1.21 | 1.16 | 1.11 |
| 31-31.9 | 1.23 | 1.18 | 1.13 |
| 32-32.9 | 1.25 | 1.20 | 1.15 |
| 33-33.9 | 1.27 | 1.22 | 1.17 |
| 34 & above | 1.29 | 1.24 | 1.19 |

**Iowa** schedule includes Black Bayou & White Castle, La. fields.

**Roanoke** schedule includes Chalkley, La. field.

**Gibson** schedule includes S. Houma, Hester & W. Lake Verret, La. fields.

**Happytown** field, St. Martin Par., La. ..... $1.15

**Posted by Arkansas Fuel Oil Corp.**

Urania, La. (May 22, '41) ..... $1.15

**Posted by Continental Oil Co.** (May 21, '41)

Tepetate, La. ..... $1.18
Ville Platte, La. ..... 1.20
Lake Arthur, La. ..... 1.18

**Abbeville, La.**

| | | |
|---|---|---|
| Below 36 $1.07 | 37-37.9 .. $1.11 | 39-39.9 .. $1.15 |
| 36-36.9 ... 1.09 | 38-38.9 ... 1.13 | 40 & above 1.17 |

## CANADIAN FIELDS

**Posted by Imperial Oil Limited Western Ontario** (Nov. 6, 1939)

Petrolia ..... $2.10 Oil Springs ..... $2.17

**Turner Valley Crude Oil** (Sept. 12, '40)

(Prices FOB producer's tankage)

| | | |
|---|---|---|
| 33-33.9 .. $1.08 | 44-44.9 .. $1.30 | 55-55.9 .. $1.52 |
| 34-34.9 .. 1.10 | 45-45.9 .. 1.32 | 56-56.9 .. 1.54 |
| 35-35.9 .. 1.12 | 46-46.9 .. 1.34 | 57-57.9 .. 1.56 |
| 36-36.9 .. 1.14 | 47-47.9 .. 1.36 | 58-58.9 .. 1.58 |
| 37-37.9 .. 1.16 | 48-48.9 .. 1.38 | 59-59.9 .. 1.60 |
| 38-38.9 .. 1.18 | 49-49.9 .. 1.40 | 60-60.9 .. 1.62 |
| 39-39.9 .. 1.20 | 50-50.9 .. 1.42 | 61-61.9 .. 1.64 |
| 40-40.9 .. 1.22 | 51-51.9 .. 1.44 | 62-62.9 .. 1.66 |
| 41-41.9 .. 1.24 | 52-52.9 .. 1.46 | 63-63.9 .. 1.68 |
| 42-42.9 .. 1.26 | 53-53.9 .. 1.48 | 64 & over 1.70 |
| 43-43.9 .. 1.28 | 54-54.9 .. 1.50 | |

**Absorption Gasoline** (Jan. 5, 1938)

90% Rec., 20 lb. Reid v.p. ..... $1.94
90% Rec. 17 lb. Reid v.p. ..... $2.08

## ROCKY MOUNTAIN FIELDS

**Posted by Stanolind Oil & Gas Co.** (May 20, '41)

Salt Creek (except Tensleep crude), Midway & Dutton Creek, Wyo.

| | | | | | |
|---|---|---|---|---|---|
| Below 29 .. $0.96 | 32-32.9 .. | $1.04 | 36-36.9 .. | $1.12 | |
| 29-29.9 .. .98 | 33-33.9 .. | 1.06 | 37-37.9 .. | 1.14 | |
| 30-30.9 .. 1.00 | 34-34.9 .. | 1.08 | 38-38.9 .. | 1.16 | |
| 31-31.9 .. 1.02 | 35-35.9 .. | 1.10 | 39-39.9 .. | 1.18 | |
| | | | 40 & above | 1.20 | |

| Wyoming: | | Wyoming: | |
|---|---|---|---|
| Tensleep Crude .. | $0.6785 | Grass Creek Light | $1.00 |
| Frannie Light ..... | .70 | GrassCreekHeavy | .50 |
| Frannie Heavy .... | .47 | Elk Basin ..... | 1.00 |
| Hamilton Dome ... | .45 | Iles, Colo. ..... | 1.07 |

**Posted by Ohio Oil Co.** (May 20, '41)

Elk Basin, Wyo. ..... $1.00
Grass Creek, Wyo., Light ..... 1.00
Rock Creek, Wyo. ..... 1.15
Lance Creek, Wyo., (July 1, '41) ..... 1.12

**Posted by Continental Oil Co.** (May 21, '41) **Ft. Collins & Wellington, Col.**

| | | | | | |
|---|---|---|---|---|---|
| Below 29 .. $0.96 | 32-32.9 .. | $1.04 | 36-36.9 .. | $1.12 | |
| 29-29.9 .. .98 | 33-33.9 .. | 1.06 | 37-37.9 .. | 1.14 | |
| 30-30.9 .. 1.00 | 34-34.9 .. | 1.08 | 38-38.9 .. | 1.16 | |
| 31-31.9 .. 1.02 | 35-35.9 .. | 1.10 | 39-39.9 .. | 1.18 | |
| | | | 40 & above | 1.20 | |

| | | | |
|---|---|---|---|
| Canon City & Florence, Col ..... | $1.05 | Big Muddy, Wyo., (May 30, '41) .. | $1.08 |
| Creek, Mont ..... | 1.15 | Lance Creek, Wyo. | .92 |

# CLASSIFIED

*Address all Blind Box Number ads to National Petroleum News, 530 Penton Building, Cleveland, Ohio, unless otherwise specified.*

## Positions Wanted

Experienced telegraph operator wants position with good pipe line company. Best references. Write to Box No. 925, National Petroleum News.

Thoroughly experienced in jobber and retail marketing of petroleum products, bulk plant and service station supervision, real estate work, etc. Fifteen years with major company. Prefer position in middle west. Address Box No. 927.

Sales Executive, age 35, University degree, eleven years experience. Now employed as Divisional Sales Manager major company. Experience includes plant and service station construction, maintenance and operation, also experience lubricating engineering. Excellent reason for desiring change. Prefer South Eastern States. For personal interview address Box No. 921.

**Marketing Executive**

19 years in the business; 16 years with large Regional Marketer in various capacities including General Managership; now employed by Major Company. University education; under 40. Desire connection with substantial Regional Company; capable taking full charge of sales, operations, accounting and credits. Salary requirement: $5000—$6000.

**Box No. 918**

## Wanted to Buy

Wanted to purchase **gasoline** and **fuel oil bulk storage stations** in Illinois, Indiana and Michigan. Also filling stations. Offers treated confidential. **Address Box No. 926,** National Petroleum News.

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*For Sale*

**SUPER TRUCK STOP**

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Property, 3 acres, well developed, 600 feet frontage. Building in good repair, containing Service Station, office, utility room, machinery room, toilets, excellent restaurant, large bunk room, fully equipped with double deck steel bunks, leather mattresses, shower and toilet room. Pumps and other equipment new—including water softener, heating units, ice boxes, etc. Driveways built for truck service. Over 20,000 gasoline storage—gallonage exceeds 35,000. Restaurant volume exceeds $2,000 monthly. Due to demands of other interests, owners will sell on basis of actual investment—land is included. Highway routes are permanent, assuring many years of uninterrupted and profitable operation. This is an unusual station in appearance, location and facilities and offers a real opportunity for sound investment. If you are genuinely interested principals will give complete information—address **Commercial Advertising Agency, 600 S. Michigan Ave., Chicago.**

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Piping Draftsmen experienced in process plant layout, equipment piping and related work. Several excellent opportunities for capable men who wish employment in growing business in the Pittsburgh district. Write, stating qualifications and salary expected. All replies will be handled confidentially. Address Box No. 907.

**WANTED SALESMAN**

Who knows oil marketing and oil marketing equipment. Free to travel. Some sales promotion experience desirable. Prefer man between 35 and 40.

**Address Box No. 928, N.P.N.**

## For Sale

Seven Bowser Xacto Bulk Plant Meters. Now in use and first class condition. Prices from $50.00 to $100.00 each. For details address P. O. Box 248, Angola, Indiana.

Name, goodwill and registered trademark one of oldest and best known Pennsylvania independent refining companies. Box 447, Warren, Pennsylvania.

1500 gallon Columbia streamline five compartment semi-trailer tank, curb delivery, barrel compartment side, and 12 can racks on each side. Price $750.00. C. L. Haskin Co., 2139 Madison Avenue, Toledo, Ohio.

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Petroleum and Gas Engineer
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Equipped For All Known Tests & Research in Petroleum Products
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# · PERSONALS ·

With the sports committee under the guidance of Chairman **Albert J. Squire,** New York, Squire & Saunderson, the New York Oil Trades' 23rd annual sports outing drew some 300 members and friends last month.

Winners in the golf tournament were:

Class A: Low gross—**Frank W. Boyd,** Service Station Equipment Co.; Second—**H. W. Lewis,** Lewis Transportation Corp.; Low Net—**C. E. Stevens,** Stevens & Stevens; Second—**W. C. Hardesty,** W. C. Hardesty & Co.

Class B: Low gross—**R. W. Katz,** Zimmerman, Alderson & Carr; Second—**J. F. Rennick,** Rennick & Mahoney; Low net—**S. D. Mandell,** Atlantic Refining Co.; Second—**F. J. Mahoney,** Rennick & Mahoney.

Class C: Low gross—**A. J. Adams,** Petroleum Heat & Power; Second—**Dart E. Hoffman,** Tide Water Associated Oil Co.; Low net—**J. F. Gebhart,** Socony-Vacuum Oil Co., Inc.; Second—**H. S. Newman,** Petroleum Heat & Power.

* * *

**G. E. Watt,** Calgary, in charge of Canadian crude oil production for the British American Oil Co. in Alberta, has been elected a director, filling the place of George W. Allan, K. C. of Winnipeg, deceased.

* * *

E. P. Maurin

**Ernest P. Maurin,** organizer of the Mid-West Oil Co., Kansas City, Kans., has sold his interest in the company and will leave shortly for Los Angeles where he will operate a compounding plant under the firm name of Westport Oil Co. Mr. Maurin, together with his brother **Julius P. Maurin,** has operated Mid-West since it was organized. On the West Coast, Mr. Maurin will be associated with his son, **Ernest P. Maurin, Jr.**

* * *

**"Ed" Herzog,** New Orleans, who started with Gulf Refining Co. at the age of 13, has resigned after 21 years of continuous service because of ill health. Among other positions with Gulf, Mr. Herzog was sales supervisor in Jackson, La., and sales representative in Vicksburg and Brookhaven, Miss. He wrote asking that the address on his weekly copy of NPN be changed and added: "Hope to be able to resume my activities again in the future."

* * *

Whenever the Virginia Oil Men's Assn. holds a summer party, there's sure to be some good golf, and the meeting of the association at Richmond, Va., was no exception.

Snapped on the green, top to bottom, left to right, were **Luther Marsh,** Richmond, American Oil Co.; **C. E. Beaver,** Norfolk, American Oil Co.; **Jimmy Johnson,** Lawrenceville, American Oil Co.; **Sherwood Hornsby,** Newport News, Hornsby Oil Co.; **J. J. Oppenheim,** Richmond, Pure Oil Co.; **R. A. West,** Covington, Ky., West-Harden Oil Co.; **George Schug,** Roanoke, Pure Oil Co.; **Tom Keinle,** Norfolk, Pure Oil Co.; **H. C. Dees,** Baltimore and **Frank Cronin,** Baltimore, both of Ethyl Gasoline Corp.

**David C. Reid,** New York, head of Weaver Shipping and Oil Corp., celebrated his 80th birthday June 5 and reports himself "still good and active." Born in Aberdeen, Scotland, during the first year of the Civil War, Mr. Reid gained most of his education in the "school of hard knocks" and migrated to this country at an early age. Shipbuilder, shipowner, manager and steamer broker, Mr. Reid was formerly president of Harlan & Hollingsworth Co., Wilmington, Del., shipbuilders, and later started the recently-dissolved tanker and oil brokerage firm which bore his name. After 9 years of retirement, Mr. Reid returned to the oil brokerage business to organize the Weaver Shipping and Oil Corp.

* * *

**Frank Prendergast,** Toronto, assistant to the president of Imperial Oil, Ltd., has returned from a five-week trip to Colombia and Peru, where his company's subsidiary, International Petroleum, has important interests. He has returned with an added stock of good human interest stories and a thick coat of tan.

* * *

Pulling a "Winchell", we break the news that **Sam Seltzer, Jr.,** Houston, refinery superintendent of Southwestern Refining Co. (and if reports are correct as high sources indicate, a recently elected "V. P." of his concern) will receive a visit from the stork sometime in September.

* * *

**Hugh Miller,** superintendent for the past 14 years of Phillips Petroleum Co.'s Borger, Tex., refinery, has been transferred to Bartlesville, Okla., where he will assume new duties as general superintendent of all refinery operations for Phillips.

**J. W. Mitchell,** superintendent of Phillips' Kansas City refinery for the past 13 years will be transferred to Bartlesville where he becomes manager of the refining department's main office.

Former manufacturing superintendent of the Texas plant, **E. H. Bender,** will become superintendent to succeed Mr. Miller, and **J. E. Bogk,** chief process engineer in the Bartlesville office, will be transferred to Kansas City to become superintendent of that plant.

# Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

## Scientists Who Gave Nation Its Motor Cars Will See It Is Ably Armed for Defense

● "SAE 20 or SAE 30?" Every service station man as well as automobile and tractor owner, is familiar with the viscosity ratings on cans of motor oils. But what is back of the insignia the three letters represent?

A fine body of scientists, the Society of Automotive Engineers, started in the early days of the automobile industry by a handful of men, and now with 7000 members. It is the accomplishments of the Society members, working through the democratic procedure of committees, that have made possible the improved performance, safety, comforts and even luxuries, in the cars that 27,000,000 Americans drive today. Now their skill and experience is being applied to enable the automobile plants to produce mass volumes of the mechanized weapons of modern warfare.

Many oil company technologists have taken part in the work of the SAE. The subject of automotive fuels was the first the Society took up when it adopted a research program as part of its work. This was in 1919, when the demand for gasoline began to push the ability of the oil companies to produce sufficient supplies. No information was then available as to how fuel behaved in an automobile engine. An Automotive Fuel Committee was formed which led to the present Co-operative Fuel Reserch Committee. Under the joint direction of oil company and automotive technologists, this group since that time has continuously studied the fuel needs of engines as well as characteristics of the fuels themselves, and with practical benefits to car owners.

Specifications for motor oils were originally adopted by the Society in 1911, as part of its work on standards for tools and materials used in automobile construction and operation. They covered specific gravity, flash and fire points, carbon residue and viscosity. These extended specifications did not prove practical, however, due to differences in characteristics of oils refined from different crudes. Present SAE classifications group motor lubricants on the basis of atmospheric temperature ranges only.

From the start oil technologists have participated in the work of the SAE lubricants standards committee, and at present 20 of its 40 members are oil company representatives.

The SAE program on standards is carried on by 20 divisional and 40 sectional committees, dealing with tools. parts, fittings, processed materials and automotive production equipment, to give some idea of the wide range of subjects.

To get the proper perspective on the principles and ideals that have been a part of the Society since its start and have led to wide accomplishments, let us go back to its beginning.

Thirty-five years ago, 5 men met on the call of a sixth, in the rooms of an automobile club on Fifth Ave., in New York, to organize a society whose members could freely interchange ideas on the design and construction of the new horseless carriages that were appearing occasionally on the streets. In effect, their society was a protest against the restrictions of a technical branch of the Licensed Automobile Manufacturers Assn. of America, which allowed the members to interchange information among themselves but would let nothing go outside their meetings. This group believed the automobile industry could have the fullest possible development only if all connected with it could share in the work of its scientific organization.

In looking about for a name, these men went to the dictionary for a definition of the word automobile and, finding none, made up this one: "Any self-propelled vehicle running on the land, in or under the water or in the air", and they named their organization, Society of Automobile Engineers. The dictionary now gives a much more limiting definition of automobile than these young engineers adopted back in 1906, in the zeal of their ambitions for a new industry. Webster's now defines an automobile as a "self-propelled vehicle suitable for use on the street or roadway."

However, the founders of this society which grew into the present Society of Automotive Engineers, one of the nation's greatest technical organizations, lived up to their own definition. An "automobile" to the SAE today, based on the scope of its activities, includes tractors, trucks, airplanes, motor vessels, in short, any vehicle with an internal combustion engine. The principle of free interchange of knowledge they adopted from the start has been adhered to in a practical way.

Early in its history the SAE established its Standards Division, to set up uniform specifications for materials for the benefit of manufacturers and standards for parts and fittings used in the construction of automobiles. It has been estimated that the cost of a car would be 15% greater today, were it not for the savings accomplished

through the SAE Standards program. To the same end, free interchange of knowledge, a Research Division was later established, to secure through co-operative effort, accurate technical information for the use of members and to make this information readily available.

Likewise, when mass production became the fundamental basis of automobile manufacturing, the SAE carried its standardization program into automotive production engineering. Its pioneering work in this field of providing standards for production practices and methods has led other industries to adopt the same methods.

Today finds this same democratic organization applying the same ideals that have given Americans continually improved and lower cost automobiles, with equal zeal to national defense projects, that we in this country may continue to live our lives on the principles our forefathers fought for. In the last war this engineering skill and enthusiasm provided the Army with a sample truck of new design in 69 days after the automotive engineers had been called together to draw up the plans. These engineers provided a sample Liberty airplane motor less than 1 month after the design had been approved. In the present emergency days, the energy and skill of the Society is turned to producing planes, tanks, army trucks and other vehicles, guns and carriages and still more instruments for fighting modern wars, of greater efficiency and in larger numbers than can the enemies of Democracy.

Leading figures in the automotive industry and heads of automobile companies have been active in the work of the SAE. Henry Ford was an early member. Charles F. Kettering, head of research work for General Motors, was president back in 1918. The valuable accomplishments of the Society, however, have been due to the fact that thousands of engineers have taken part in its work, through its many committees. Opportunity has been equal and credit has been given proportional only to the contribution to the industry's knowledge and not on the individual's rank or position.

It is fortunate for the nation that, in our defense preparations, much of the technical planning is in the hands of the men of the Society of Automotive Engineers.

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# Terry is Guest of Honor At Committee D-2 Dinner

GUEST of honor at the dinner of Committee D-2, of the American Society for Testing Materials, held June 24 in Chicago during the annual meeting of the Society, was John B. Terry, of San Francisco, consulting chief chemist of Standard Oil Co. of California. He was presented with a camera attachment for securing magnification when taking photographs.

Mr. Terry is known among petroleum technologists for his work in the development of petroleum plant and insect spray oils, and he is chairman of the D-2 sub-committee on plant spray oils. He has contributed his technical knowledge to government agencies and universities in their studies on this subject.

He went to work for Standard of California in 1905 as an analytical chemist, following his graduation from University of California. After early technical service at the Richfield refinery, he became head chemist of the company in 1920. He was advanced to chief chemist in 1922 and in 1941 was made consulting chief chemist.

A. G. Marshall, Martinez, Calif., Shell Oil Co., was toast master at D-2's dinner. K. G. Mackenzie, New York, The Texas Co., made the presentation speech. The holding of an annual dinner honoring one of its members who has made valuable contribution to the work on tests and specifications for petroleum products has been an annual custom of the committee for some years.

T. G. Delbridge, manager of the research and development department of Atlantic Refining Co., Philadelphia, vice-chairman of Committee D-2, presided at the session of the ASTM June 25, when the annual report of D-2 was presented. R. P. Anderson, of the staff of the American Petroleum Institute, New York, secretary of the committee presented the report.

T. G. DELBRIDGE, Philadelphia, manager of the research and development department of Atlantic Refining Co., vice-chairman of Committee D-2, presided at session of the annual meeting of the ASTM, at which the report of the committee was presented

JOHN B. TERRY, San Francisco, consulting chief chemist of Standard Oil Co. of California, honored at the annual dinner of Committee D-2 of the ASTM, for his work on petroleum oils for plant and insect sprays

# Commercial Aviation Gasoline Specifications Adopted by ASTM

TENTATIVE standard specifications for 3 grades of aviation gasoline for commercial use were adopted by the American Society for Testing Materials June 25, at its annual meeting in Chicago. The grades vary principally as to knock rating and are designated by the following ASTM minimum aviation knock values; 73, 91 and 100.

These tentative standards, which were given in the report of ASTM Committee D-2 on petroleum products and lubricants, are a revision from the aviation gasoline specifications originally published in 1939, as information only, following the Society's routine procedure.

The chief point of difference in the new standards is that the classification is for 3 grades, while the original report called for 5 grades, of 73, 80, 87, 90 and 95 minimum octane number.

Maximum tetraethyl lead content is 3 ml. per gal. in the 100 grade, 4 in Grade 91, and 1 ml. in Grade 73. The original requirements were 4 ml. maximum in Grades 95 and 90; 3 in Grade 87; 2 in Grade 80 and none in Grade 73. The minimum tetraethyl lead content of 3.5 ml. for Grades 90 and 95, in the original specifications, is omitted in the new standards, since a method for knock test of aviation gasoline has been developed by the Aviation Fuels Division of the Co-operative Fuel Research Committee and was included in Committee D-2's report and adopted as tentative standard by the Society.

In the absence of an adequate knock test for aviation gasolines, a minimum content for tetraethyl lead content was given in the original specifications, because it was considered necessary that ASTM octane numbers should be qualified in accordance with the lead content of the gasoline in the 90 and 95 range.

The same distillation requirements are given for the present 3 grades as for the original 5 grades. The sulphur requirement has been reduced from a maximum of 0.10% to 0.05% in the new specifications. (The new specifications are published on p. R-214).

The study of aviation gasoline requirements was undertaken in 1938 at the request of the Air Transport Assn. of America, by the Survey Division of the CFR Committee, which represented the leading air line operators, engine manufacturers and refining companies. Recently, since the Army and Navy requirements for aviation gasoline have become the chief concern of the oil companies, the air line operators see even greater need for specifications for commercial grades. They believe the government specifications may be redrawn from time to time, to meet special requirements for fuel for planes in military operations, and that they should not be required to purchase fuels meeting these more exacting specifications.

The aviation gasoline specifications and the new tentative standard test for knock characteristics of aviation gasoline were 2 of 5 new tentative standards for petroleum products proposed by Committee D-2, and adopted at this annual meeting of the ASTM. The other 3 were a test for ignition quality of Diesel fuels; test for aniline point of petroleum products and test for carbonizable substances in paraffin wax.

### Knock Test for Aviation Fuels

Of importance to operators of motor fuel knock test apparatus also is the provision for humidity control procedure, in the new tentative standard test for knock characteristics of aviation fuels. For this same humidity control procedure is to be included in the ASTM Standard Test for Knock Characteristics of Motor Fuels D357-40. To this end the motor fuel knock test was withdrawn as standard at this meeting of the Society, and is to be revised. (On p. R-216 is published a description of the humidity control apparatus as a part of the induction system for the test apparatus for aviation fuels.)

The method of test for knock characteristics of aviation fuels differs from the ASTM knock test on motor fuels, principally in the manner in which combustion characteristics are measured. In the former method a thermal plug is used for comparing temperatures in the cylinder, while, in the motor fuel method, knock intensity is measured by a bouncing pin and knock meter. However, the term "knock characteristics" has been retained because of its widespread use, even though knock intensity is not actually measured.

This test method was developed by the Aviation Fuels Division of the Co-operative Fuel Research Committee, after several years of intensive research, states the report of Committee D-2. "The results obtained with this laboratory test parallel closely those obtained on a variety of engine fuels in actual service in current aircraft engines", it was stated. "However, for fuels above 100 octane number, the relationship between ratings obtained by this method and those obtained in actual service has not yet been thoroughly established."

The ASTM aviation knock value of a fuel is stated as the whole number nearest to the percentage by volume of isooctane (2,2,4-trimethylpentane) in a blend of iso-

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Procedure for humidity control is to be made standard in the ASTM test methods for knock characteristics of motor fuel and of aviation gasoline ..... R-216

Special test apparatus for determining performance characteristics of petroleum greases has been developed at the U. S. Naval Experiment Station at Annapolis ..... R-218

Underlying principles in the cathodic method of protecting refinery condensers and coolers are discussed and four installations in open-tank condensers are described ..... R-222

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octane and normal heptane that the fuel matches in knock characteristics when compared by the procedure prescribed in this method. When the knock value of the fuel is greater than that of isooctane, the value is expressed in terms of isooctane plus tetraethyl lead with concentrations expressed to the nearest 0.05 ml. up to 1.0 ml. per gallon, to the nearest 0.1 ml. from 1.0 ml. up to 2.5 ml. per gallon, and to the nearest 0.25 ml. for 2.5 ml. or more per gallon.

The current report of Committee D-2 describes in detail the apparatus and operating procedure for making the test for knock characteristics of aviation fuels, as well as other new and revised standard tests.

The new tentative standard method of test for diesel fuels adopted at this meeting of the ASTM, originated in the Automotive Diesel Fuels Division of the CFR Committee. It is intended for determining the ignition quality of these fuels in terms of an arbitrary scale of ASTM cetane numbers.

The ASTM cetane number of a Diesel fuel is defined by and is numerically equal to the percentage by volume of cetane in a mixture of cetane and α-methylnaphthalene which the fuel matches in ignition quality when compared by the procedure prescribed in this method. Thus, by definition, α-methylnaphthalene has a cetane-number rating of zero, and cetane, of 100. Cetane number is reported to the nearest whole number.

The new tentative method of test for aniline point is intended to determine the aniline point of petroleum products not darker than No. 8 ASTM color, provided the aniline point lies between the initial boiling point and the solidification point of the aniline-sample mixture. The tentative method for test of carbonizable substances in paraffin wax is to ascertain whether it conforms to the standard of quality prescribed by the U. S. Pharmacopoeia. It is similar to the present tentative test for carbonizable substances in white mineral oil. (D565-40T).

## Six Tentative Standards Revised

Revisions of 6 tentative standard test methods were adopted by the Society, as recommended by Committee D-2. They are:

**For Carbon Residue of Petroleum Products (Ramsbottom Carbon Residue) (524-40 T)**—There is added an appendix containing 2 equations and a table showing the relationship between values obtained by this method and those obtained by the Conradson carbon residue test.

**For Gum Stability of Gasoline (D 525-40 T)**—Revision consists principally in reduction of the required sample volume from 100 ml. to 50 ml. and in the addition of a method for correcting to specified temperature the induction periods obtained at slightly different or more convenient operating temperatures.

**For Neutralization Number of Petroleum Products and Lubricants (D 188-27 T)**—The method of test published last year as information, revised to provide for one reheating only, is to replace the present tentative method. It is said to be more reproducible and to give results of the same order of the present method.

The revision was recommended by a sub-committee which has been studying for some years such variables as temperature, time, degree of agitation, strength and type of solvent and strength of alkali, which affect the test results obtained.

This sub-committee has also prepared a potentiometric method and a so-called "Rapid Method" for determining neutralization number, which are published as information only in the current report of Committee D-2. The potentiometric method permits accurate determination of neutralization numbers on severely oxidized oils, but, since the equipment is not generally available and needs further study, it is not recommended as a tentative standard.

The "Rapid Method" is a modification of the method new recommended as tentative standard, which shortens the time factor. There are indications that the results of this method may be more significant when studying used crankcase oils. The above 2 new test methods are published as information only, in the current report of Committee D-2.

**For Saponification Number (D 94-39 T)**—A method using methyl ethyl ketone is to replace the present tentative standard. Results obtained by the new proposed method were said to check results obtained by the present method, and only 10 minutes are required to run the test. The study of comparative results by the two test methods were made by the same sub-committee which did the work on neutralization number, of which H. P. Ferguson, Standard Oil Co. of Ohio, was chairman.

**For Sulphur in Petroleum Oils by Lamp Method (D 90-34 T)**—Principal features of the revision are a provision for purifying the air used for combustion from acid or acid-forming impurities, and the use of a sintered glass plate in the place of glass rods or beads in the absorber to increase its efficiency.

**For Tetraethyl Lead in Gasoline (D 526-39 T)**—Minor revisions.

## Three Standard Tests Revised

Revisions in 3 standard test methods recommended by Committee D-2 were adopted by the Society, as follows:

**For Carbon Residue of Petroleum Products (Conradson Carbon Residue) (D 189-39)**—Addition of an appendix containing 2 equations and a table showing the relationship between the values obtained by this method and the Ramsbottom Carbon Residue test method (D 524-40 T).

**For Distillation of Crude Petroleum (D 285-36)**—Revised to make the description of the condenser less restrictive without affecting the results.

**For Distillation of Gas Oil and Similar Distillate Fuel Oils (D 158-38)**—Same revision as for the method for crude petroleum.

Three tentative standard test methods were recommended for adoption as standard, as follows:

**For Distillation of Plant Spray Oils (D 447-40 T)**—Same revision as for the method for crude petroleum.

**For Calculating Viscosity Index (D 567-40 T)**—Without revision.

**For Vapor Pressure of Petroleum Products (Reid Method) (D 323-40 T)**—Revised to improve the wording and introduce a general provision which makes it possible to carry out the test with the initial temperature in the air chamber at 100 F. and eliminate the necessity for correcting for air expansion.

Proposed by Committee D-2 for publication for information only was a Method for Converting Kinematic Viscosity to Saybolt Furol Viscosity at 122 F. This was the result of work by a sub-committee of which J. C. Geniesse, Atlantic Refining Co., was chairman, which made a comparison of kinematic and Saybolt Furol viscosities. Seven laboratories determined the Saybolt Furol viscosity at 122 F. on 7 samples of oil and 4 laboratories determined the kinematic viscosity on the same samples at the same temperatures. The Saybolt Furol viscosities were computed from the kinematic viscosities as determined by means of equations developed by W. H. Herschel and the computed and experimental values were found to be in good agreement.

# TOPPING CAPACITY ... Increased 46%
# CRACKING CAPACITY.. Increased 18%
# ON STREAM TIME ... Increased 500%

*Photo courtesy of Leonard Refineries, Inc.*

The Petreco Electromatic De-Salter shown above is located at the Alma, Michigan plant of Leonard Refineries, Inc. This refinery originally was designed to top 2300 bbls. per day, and crack 1100 bbls. per day, of mixed Michigan crude. Operating at these capacities, the runs varied from 10 to 12 days.

In an effort to better this performance, a Petreco De-Salter was incorporated into the refining cycle. As a result, the topping thruput was raised from 2300 to 2800 bbls. per day; a capacity increase of 500 barrels daily. The cracking capacity showed a daily increase of 200 barrels per day. Thus, a total increase of 700 bbls. per day of refined products was gained. This increase, impressive in itself, is further multiplied when it is realized that *since the Petreco installation, on stream time has increased from about 10 days to over 60 days.*

A Leonard Refinery official also reports that since the desalter installation, the color stability of their kerosene stock has improved to such an extent that their product commands a premium over kerosenes manufactured from non-desalted crudes.

The savings accruing from this Petreco installation are obvious. In many other leading refineries, equally impressive economies and profits are being credited to Petreco Electrical De-Salters. Representatives with complete information will be glad to call at your convenience. No obligation is entailed.

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# PETREKO

DE-SALTING  DEHYDRATING

# ASTM Standard Aviation Gasoline Specifications

**(Adopted as proposed tentative specifications[1], in annual meeting of American Society for Testing Materials[2], subject to annual revision)**

**Scope**

1. **(a)** These specifications are for the use of purchasing agencies in formulating specifications for purchases of aviation gasoline under contract.

**(b)** These specifications are not a definition of aviation gasoline, nor do they include all types of fuel satisfactory for spark-ignition aviation engines. Certain equipment or conditions of use may require fuels having special characteristics.

**Grades**

2. Three grades of aviation gasoline are provided, varying chiefly as to knock value. The grades are designated by their respective A.S.T.M. aviation knock values as follows:

Grade 73
Grade 91
Grade 100

**General**

3. These specifications state the required properties of aviation gasoline at the time and place of delivery in bulk.

**Detailed Requirements**

4. The three grades of aviation gasoline shall conform to the requirements prescribed in Table I.

**Methods of Testing**

5. The requirements enumerated in these specifications shall be determined in accordance with the following methods of test:

**(a) Knock Value.**—A.S.T.M. Method of Test for Knock Characteristics of Aviation Fuels (A.S.T.M. Designation: D ——)[3].

**(b) Tetraethyl Lead.**—Tentative Method of Test for Tetraethyl Lead in Gasoline (A.S.T.M. Designation: D 526)[4].

**(c) Net Calorific Value.**—Determine the gross calorific value in an oxygen-bomb calorimeter and, to obtain the net calorific value, make a suitable correction for the latent heat of vaporization of water formed during the combustion of the fuel. For referee tests, use the procedure described in the Standard Method of Test for Thermal Value of Fuel Oil (A.S.T.M. Designation: D 240)[6] modified as follows for volatile fuel:

Fill a dry, weighed, gelatin capsule of suitable size with dry cotton fiber, weigh the capsule again, and record the weight of gelatin and cotton. Fill the capsule by immersing it in the fuel and closing it under the surface. Dry the outside of the capsule, weigh the capsule immediately, and record the weight of the fuel. Wrap the ignition wire around the capsule three or four times and place the capsule immediately in the bomb. Fill the bomb with oxygen at 30 atmospheres. Repeat the test if traces of sooty deposit or odor of unburned fuel are noticed when the bomb is opened after combustion. Deduct the heat of combustion of the gelatin and cotton from the total heat developed.

CALCULATION OF NET CALORIFIC VALUE.—Any suitable method may be used for determining the water formed during the combustion, for correcting the calorific value for the latent heat of vaporization of the water. However, for referee tests use the method described in the paper, "Determination of Carbon and Hydrogen in Gasoline and Other Volatile Liquids," by H. Levin and C. Uhrig,[7] or any other mutually satisfactory method, to determine the weight of water formed by cumbustion of each pound of fuel. The net calorific value per pound of fuel shall be considered as equal to the gross calorific value minus the weight, in pounds, of water per pound of fuel multiplied by 1050.

**(d) Distillation.**—Standard Method of Test for Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products (A.S.T.M. Designation: D 86)[8].

**(e) Acidity of Distillation Residue.**[9]—Determine the acidity of the distillation residue immediately after the distillation test. Collect in a test tube the cooled residue from the distillation flask, add three volumes of distilled water, and shake the tube thoroughly. Allow the mixture to separate and remove the aqueous layer to a clean test tube by means of a pipette. Add 1 drop of a 0.1 per cent solution of methyl orange and note any change in color. If neutral no pink or red color will be formed.

**(f) Vapor Pressure.**—Tentative Method of Test for Vapor Pressure of Petroleum Products (Reid Method) (A.S.T.M. Designation: D 323).[10]

**(g) Corrosion:**

COPPER STRIP.—Standard Method of Test for Detection of Free Sulfur and Corrosive Sulfur Compounds in Gasoline (A.S.T.M. Designation: D 130).[11]

COPPER DISH.[12]—The apparatus required consists of (1) hemispherical dishes of spun copper approximately 3½ in. in diameter, and (2) a steam bath (Note 1).

Place 100 ml. of the gasoline in a freshly polished copper dish, and place the dish in an opening on the steam bath, which has already been brought up to temperature. Leave the dish on the steam bath until all of the gasoline has evaporated. A gray or black discoloration of the inside of the dish is evidence of the presence of elementary sulfur or corrosive sulfur compounds in the gasoline. Frequently light brown, red, or purple colored rings are left on the dish and if gum is present there may be a deposit of light colored or brownish residue. Such coloration should be ignored and the sample considered as passing the corrosion test unless there is unmistakable evidence of gray or black discoloration. If the gasoline is colored, the residue left on evaporation should be washed with noncorrosive benzol to dissolve the dye before inspection for corrosion.

NOTE 1.—The dishes and steam bath used for the determination of copper-dish gum as described in F.S.B. Method 330.1[13] may be employed if desired, although this

[1] Under the standardization procedure of the Society, these specifications are under the jurisdiction of the A.S.T.M. Committee D-2 on Petroleum Products and Lubricants.
[2] Accepted by the Society at annual meeting, June 25, 1941.
[3] Published as tentative standard test in current report of Committee D-2, starting p. 43.
[4] 1939 Book of A.S.T.M. Standards, Part III, p. 630.
[5] 1939 Book of A.S.T.M. Standards, Part III, p. 106.
[6] *Ibid.*, p. 210.
[7] *Industrial and Engineering Chemistry*, Analytical Edition, Vol. 9, p. 326 (1937).
[8] 1940 Supplement to Book of A.S.T.M. Standards, Parts II, and III.
[9] This test for acidity of distillation residue is identical with Method 510.2 of the Federal Specification for Lubricants and Liquid Fuels; General Specifications (Methods for Sampling and Testing) (VV-L-791a).
[10] 1940 Supplement to Book of A.S.T.M. Standards, Part III, p. 214.
[11] 1939 Book of A.S.T.M. Standards, Part III, p. 206.
[12] This copper dish test for corrosive properties is identical with Method 530.11 of the Federal Specification for Lubricants and Liquid Fuels; General Specifications Methods for Sampling and Testing) (VV-L-791a).
[13] See Federal Specification for Lubricants and liquid Fuels; General Specifications (Methods for Sampling and Testing) (VV-L-791a).

steam bath is considerably more elaborate than that required for the corrosion test. The dimensions of the various dishes and of the circular openings in the top of the steam bath should be such that when the dishes are in place on the steam bath, the steam comes in contact with the outer surface of the dish up to the original level of the gasoline. If a low-pressure steam supply is not available, an actively boiling water bath may be employed, provided that the dish does not come in contact with the water.

**(h) Gum (Accelerated Aging Test with Oxygen).**—Immerse sufficient, clean steel (S.A.E. No. 1020)[14] tubing ¼ in. in diameter (strips twisted into a spiral so that flat contact is avoided may be used) to furnish 35 sq. in. of exposed surface in 200 ml. of the finished gasoline in an 8-oz. oil sample bottle. Cover the bottle loosely to prevent the ingress of foreign matter and place in a dry bomb with the bomb and contents at room temperature. Fill the bomb with oxygen to a pressure of 95 to 100 psi., then allow the oxygen to escape to flush out air. Repeat the operation. Charge the bomb with oxygen to a pressure of 95 to 100 psi. for a third time, close the charging valve, and disconnect the bomb from the oxygen charging line. Immerse the bomb and contents for 5 hr. in a steam or water bath heated to 208 to 212 F. (97.8 to 100 C.). At the completion of the 5-hr. period, remove the bomb and cool rapidly with water. Release the pressure gradually, remove the bottle, and pour out the contents. To remove any insoluble gum wash the bottle twice with 20 ml. of a mixture of equal parts of acetone and benzene of laboratory reagent grade. Add these washings to the oxidized sample, shake and filter the mixture. Evaporate one-half of the oxidized sample and washings to dryness on a steam bath in accordance with the procedure for corrosion (copper dish) referred to in Paragraph (g), except that a weighed glass dish shall be used. Place the dish in an electric air-oven maintained at 230 ± 9 F. (110 ± 5 C.). After 2 hr. in the oven, place the dish in a desiccator containing anhydrous calcium chloride, cool to room temperature, and weigh. The difference between the original and final weights of the dish is the weight of the gum content. Express as milligrams per 100 ml.

If the amount of residue exceeds 6 mg. and the fuel contains tetraethyl lead, the residue may be analyzed for lead compounds, and the weight of lead chromate ($PbCrO_4$) multiplied by 0.80, or the weight of the lead sulfate ($PbSO_4$) multiplied by 0.85 may be deducted from the total weight of the residue.

NOTE: Caution.—Avoid exposing the sample to daylight prior to and during this test. At the end of the test no visible precipitate shall be present in the test bottle.

**(i) Sulfur.**—Tentative Method of Test for Sulfur in Petroleum Oils by Lamp Method (A.S.T.M. Designation: D 90).[15]

**(j) Freezing Point of Gasoline.**[16]—Any convenient type of apparatus may be employed for measuring the freezing point of gasoline, provided that the rate of heat interchange between the gasoline and the cooling medium can be maintained sufficiently low so as to obtain the desired precision of freezing-point measurement. A suitable type of apparatus is shown in Fig. 1 (Note 2). The glass tube for holding the gasoline is similar to a Dewar cylinder, except that a small glass tube is connected to the bottom to permit varying the air pressure in the annular space and hence control the rate of heat transfer across this space. The inside tube of this double-walled container is 20 mm. in diameter and 150 mm. in length, and the width

[14] 1940 S.A.E. Handbook, p. 304.

[15] See p. 70.

[16] This test for freezing point is identical with Method 141.1 of the Federal Specification for Lubricants and Liquid Fuels; General Specifications (Methods for Sampling and Testing) (VV-L-791a).

## Table I—Requirements for Aviation Gasoline

| | Test Method (*a*) | Grade 73 | Grade 91 | Grade 100 |
|---|---|---|---|---|
| A.S.T.M. aviation knock value, min. | A.S.T.M. D. — | 73 | 91 | 100 |
| Tetraethyl lead, max., ml. per gal. (*b*) | A.S.T.M. D 526 | 1 | 4 | 3 |
| Net calorific value, min., Btu. per lb. (*c*) | Section 5 (*c*) | 18,300 | 18,700 | 18,700 |
| **Requirements for All Grades** | | | | |
| Distillation temperature, max., deg. Fahr.: | | | | |
| 10 per cent evaporated | A.S.T.M. D 86 | | 158 | |
| 50 per cent evaporated | | | 212 | |
| 90 per cent evaporated | | | 257 | |
| Sum of 10 and 50 per cent evaporated temperatures, min., deg. Fahr. | | | 307 | |
| Distillation recovery, min., per cent | | | 97 | |
| Distillation residue, max., per cent | | | 1.5 | |
| Distillation loss, max., per cent | | | 1.5 | |
| Vapor pressure, max., lb. | A.S.T.M. D 323 | | 7.0 | |
| Acidity of distillation residue | F.S.B. 510.2 | | shall not be acid | |
| Color (*d*) | | | blue | |
| Corrosion: | | | | |
| Copper strip | A.S.T.M. D 130 | | no gray or black discoloration | |
| Copper dish | F.S.B. 530.11 | | no gray or black discoloration; residue on evaporation of 100 ml. not to exceed 5 mg. | |
| Gum, accelerated, max., mg. per 100 ml. | Section 5 (*h*) | | 6 | |
| Sulfur, max., per cent | A.S.T.M. D 90 | | 0.05 | |
| Freezing point, max., deg. Fahr. | F.S.B. 141.1 | | −76 | |
| Water tolerance | Section 5 (*k*) | | volume change not to exceed ± 2 ml. | |
| Permissible gum inhibitors (*e*), max., lb. per 5000 gal. | | | 1.0 | |

(*a*) The test methods indicated in this table are described or referred to in Section 5 of current report of Committee D-2.

(*b*) Tetraethyl lead in the form of 1-T ethyl fluid.

(*c*) Aviation gasoline having a net calorific value according to Table 7 of *Miscellaneous Publication No.* 97, "Thermal Properties of Petroleum Products," of the National Bureau of Standards, more than 100 Btu. higher than the specification limits shown in Table I, meets the requirement and the actual determination of net calorific value is unnecessary.

(*d*) Color of gasoline containing tetraethyl lead shall be equivalent to the color imparted by not less than 3 ml. of tetraethyl lead per gallon in the form of 1-T ethyl fluid. Gasoline not containing tetraethyl lead shall not be darker than +25 Saybolt, as determined in accordance with the Standard Method of Test for Color of Refined Petroleum Oil by means of Saybolt Chromometer (A.S.T.M. Designation: D 156) of the American Society for Testing Materials.[3]

(*e*) Permissible gum inhibitors are as follows:

Monobenzyl-para-aminophenol *Iso*butyl-para-aminophenol Normal butyl-para-aminophenol n, n'-dibutyl-para-aminophenol
Ortho-, meta-, and para-cresols Alpha-naphthol

These inhibitors may be added to the gasoline, separately or in combination, in total concentration not to exceed 1.0 lb. of inhibitor (not including weight of solvent) per 5000 gal. of gasoline.

of the annular space is 2 mm. The mouth of the tube is closed with a cork stopper, containing openings for a thermometer and for a packing gland through which the stirrer passes. This gland consists simply of a brass tube, of design shown in Fig. 1, which fits tightly into the hole in the cork stopper, the space between the brass tube and the stirrer rod being filled with absorbent cotton. A packing gland is necessary to prevent condensation of moisture in the gasoline at the low test temperatures, and consequent formation of ice crystals in the gasoline. The stirrer is made of ⅛-in. brass rod, bent into a loop at the bottom.

A Dewar cylinder is employed for holding the cooling liquid or mixture (Note 3). The top of this cylinder is covered with a loosely fitting brass cap containing appropriate openings for the double-walled container. A frame is suspended from the brass cap to hold the double-walled container.

An A.S.T.M. low cloud and pour test thermometer, 76-mm. (3-in.) immersion, graduated in either Centigrade or Fahrenheit degrees as specified, having a range of —60 to +20 C. or −70 to +70 F. and conforming to the requirements for this thermometer as prescribed in the Standard Specifications for A.S.T.M. Thermometers (A.S.T.M. Designation: E 1) of the American Society for Testing Materials,[17] shall be used. Use of the Centigrade thermometer is preferable since it is graduated to −60 C. whereas the Fahrenheit thermometer is only graduated to −70 F.

Transfer about 15 ml. of gasoline to the clean, dry, double-walled container, and close with a cork stopper holding the thermometer and stirrer. Place the container in the brass holder and insert into the Dewar cylinder partially filled with the cooling medium. Stir the gasoline continuously until a temperature is reached at which crystals separate or until the thermometer indicates a temperature of −60 C. In this latter case, record the freezing point as below −60 C.

If a freezing point is observed, allow the gasoline to warm up to a temperature of about 10 C. above the observed value, the double-walled container being removed for this purpose from the Dewar cylinder. During this warming-up process, stir the gasoline in order to insure uniformity of temperature throughout and to insure melting of the separated solid. Reinsert the container in the Dewar cylinder, and control the rate of heat interchange so that the temperature of the gasoline, while being thoroughly stirred, drops at a rate not in excess of 2 C. per min. Record as the freezing point the temperature at which crystals first appear (Note 4).

NOTE 2.—With the apparatus shown in Fig. 1, the rate of cooling can be controlled conveniently by reducing the air pressure in the annular space between the walls of the gasoline container. The required reduction in pressure depends upon the nature of the cooling medium, the degree of contact between the outer wall of the container and the cooling medium, and upon the freezing-point temperature.

If the freezing-point apparatus used is of a type other than that shown in Fig. 1, an analogous procedure may be employed, provided that the final measurement shall be made while the gasoline is cooling at a rate not in excess of 2 C. per min.

NOTE 3.—Any convenient cooling liquid or mixture may be used. A mixture of solid carbon dioxide and gasoline is suitable, or liquid nitrogen may be employed. Liquid oxygen shall not be used, due to the great hazards involved if the double-walled container should break. With an experienced operator, liquid air can be employed, but every precaution should be taken to avoid breaking of the gasoline container.

NOTE 4.—Frequently a cloud will appear in the gasoline at a considerably higher temperature than the freezing point. This is due to the separation of small amounts of water in the gasoline and should be ignored.

**(k) Water Tolerance.**—Place 80 ml. of the gasoline in a glass-stoppered graduate with 20 ml. of distilled water at room temperature and shake vigorously for at least 2 min. After shaking, allow to settle and record the volume of the aqueous layer.

[17] 1939 Book of A.S.T.M. Standards, Parts II and III.



# Ice Tower for Humidity Control New Feature of ASTM Knock Test

THE humidity-control apparatus which is included in the new ASTM tentative standard test for knock characteristics of aviation gasoline is described below. Its use is prescribed as necessary when the air in the room where the test engine is operated contains more than 50 grains of water vapor per pound of dry air. The same apparatus and procedure is also to be made a part of the ASTM test method for knock characteristics of motor fuel, in the interests of more uniform test results. The motor fuel knock test (D 357-40), by action of the Society June 25, was withdrawn as standard until revised.

"A5.(a) Humidity-Control Apparatus—Necessary when the air in the room where the engine is operated contains more than 50 grains of water vapor per pound of dry air.

"The humidity shall be controlled, when necessary, by means of the C.F.R. ice tower, Fig. 2, which consists of an insulated cylindrical tank arranged to pass the engine-inlet air through an ice bed, thus chilling it and delivering saturated air at approximately 32 F. with a moisture content of 26 to 28 grains per pound of dry air.

"The tower is arranged to take air in at the top with a down flow through the ice pack. The air leaves the tower through a tube at the center of the ice pack, passing up from the bottom. This design permits the addition of ice without interrupting the engine operation. The center tube provides a chilled outlet passage, thus preventing the evaporation of entrained moisture.

"The tank is made of galvanized sheet metal with 2½ in. of rock-wool insulation of sides and bottom. The ice is supported on a ½-in. mesh wire screen held 4 in. above the bottom of the tank to form a surge chamber. The outlet pipe connects through a pipe bend to the pipe leading to the combination surge tank and air heater located on the carburetor inlet pipe.

"Flexible rubber hose connections in the air line permit adjustment of the compression ratio. The tower is supported on an angle iron stand to allow convenient drainage through a trap at the bottom. A removable wood cover on the top permits convenient access for filling. The 3-in. opening in the cover is the normal air inlet, which can be closed by a slide cover to economize when the engine is shut down.

"The tower shall be charged with 2-in. lump ice. If the size is materially larger channeling may occur, if smaller the air supply to the engine may be restricted. The minimum depth of the ice bed shall be 18 in."

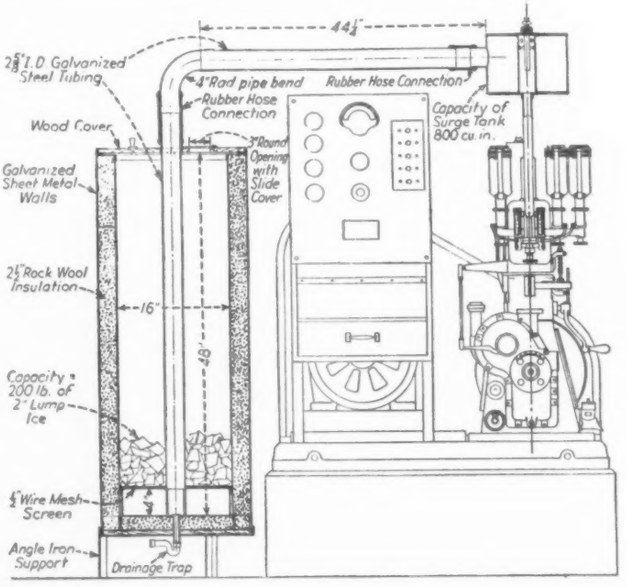
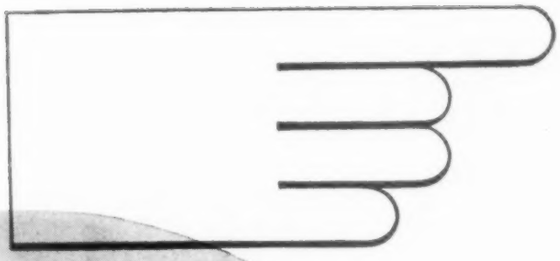



Fig. 2—Ice tower humidity apparatus and intake system



# Catalytic Cracking

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# New Test Apparatus Enables Navy To Set Service Standards for Grease

Presented June 25 at Annual Meeting of American Society for Testing Materials, at Chicago, under title, "Performance Specificationse for Grease"[1]

By Robert C. Adams** and Harrison E. Patten**

**Special test apparatus, to determine the properties of petroleum greases in service, has been devised at the Engineering Experiment Station, at Annapolis, of the Navy Dept.**

**Co-ordination of results from this testing equipment has made possible performance specifications, enabling the purchase by the Navy of these products on a work-factor basis, as is already used for lubricating oil requirements. This has resulted, it is stated, in the purchase of superior quality greases and a reduction in the cost of lubrication, even though there has been some increase in the unit cost of the materials.**

**The need for performance specifications is shown, it is said, in increased demands on lubricants, through higher speeds, increased bearings loads, pressures and temperatures. The test apparatus, described here, measures plasticity, leakage, bleeding and resistance to oxidation under high and low temperatures and other simulated service conditions.**

THE Navy has known for several years that the specifications under which the purchases of lubricating greases are made are faulty and has been searching for an improved method of specification. Increasing speeds, bearing loads, tooth pressures and operating temperatures have increased the demands on lubricants, in many cases beyond the point where simple composition specifications give assurance of satisfactory material.

For the lubrication of some machines and accessories, the demands of which are particularly severe, lubricants recommended by the manufacturer of the machinery have been purchased. This system of temporizing has resulted in the growth of an extensive list of proprietary lubricants, with the attendant complication of maintaining stocks of twenty or thirty special lubricants at Naval bases and yards and on supply ships and aircraft carriers. A particularly objectionable feature has been the necessity of stocking several different lubricants for similar machines from different manufacturers.

### Desirability of Performance Tests

Government Departments, particularly the Navy, have long favored the purchase of materials on a service life or work-factor basis. In the case of lubricating oils, this method has been so far developed that the work factor is applied to the manufacturer's bid price with the result that the Government instead of purchasing lubricating oil buys lubrication with oil.

Work on greases has been in progress at the Engineering Experiment Station for several years and it now appears that the specification of greases on the basis of performance instead of the former specification on the basis of composition and physical properties is possible. The work is by no means completed, but a description of the special apparatus and the results which have been obtained to date should be of interest to both producers and consumers of greases.

The object of these methods is to measure the working lubricating properties of grease without regard to the materials of which it is composed, the manner of manufacture, or its history prior to receipt. While all of these affect its properties, the evaluation of such diverse factors is impracticable. Naturally the first efforts were directed toward lubricants for apparatus in which the greatest difficulty had been encountered.

### High-Temperature Grease

The first of these was the specification of lubricants for high-temperature service, in situations where grease would be exposed to temperatures of 300° F. or more. An apparatus was designed and built, Navy Grease Machine 1938, Fig. 1, in which a standard ball bearing, filled with the test lubricant, can be operated at controlled temperature and speed, while the torque is measured. All else being equal, it is reasonable to believe that the grease with the lowest torque and therefore the lowest friction loss would be the most suitable. Many precautions are necessary in order to obtain reproducibility. The first is the maintenance of a uniform filling of the test bearing with grease. To accomplish this a filling apparatus, called the Navy Bearing Packer, Fig. 2, was made, with which all voids in a No. 204 opening bearing can be filled. The amount of grease loaded into the test bearing by means of the bearing packer is reproducible within 1 per cent.

Principal variables affecting the torque measurements, in addition to the character of the grease, are temperature, amount and distribution of grease in the bearing, speed of rotation, and time since the start of the test. The last is important because of the thixotropy of the grease, since during working its plasticity is constantly changing. Time can be measured, but not altered or reversed. In order to obtain reproducible results, it is necessary to collect all data in the form of torque-time curves. All other variables can be maintained constant throughout the test run.

At the start of the test run the grease is packed into 100 per cent of the voids of a weighed, No. 204, eight-ball bearing without grease shields, and the filled bearing is again weighed. The outer race of the test bearing is clamped into a brake drum and the assembly locked on the shaft of the Navy Grease Machine with the shaft through the inner race, and the brake drum connected to the torque-measuring spring. The motor previously has been adjusted to rotate at the desired speed and the test temperature is set.

The motor is started and the first excursion of the spring is read as the initial torque, with readings thereafter at first frequently, then at increasing intervals, for 1 hr. Although the torque has been observed to decline continuously, at a decreasing rate, for as long as 16 hr.,

[1] The opinions expressed in this paper are those of the authors and are not necessarily official opinions of the Navy Dept. or the Engineering Experiment Station.

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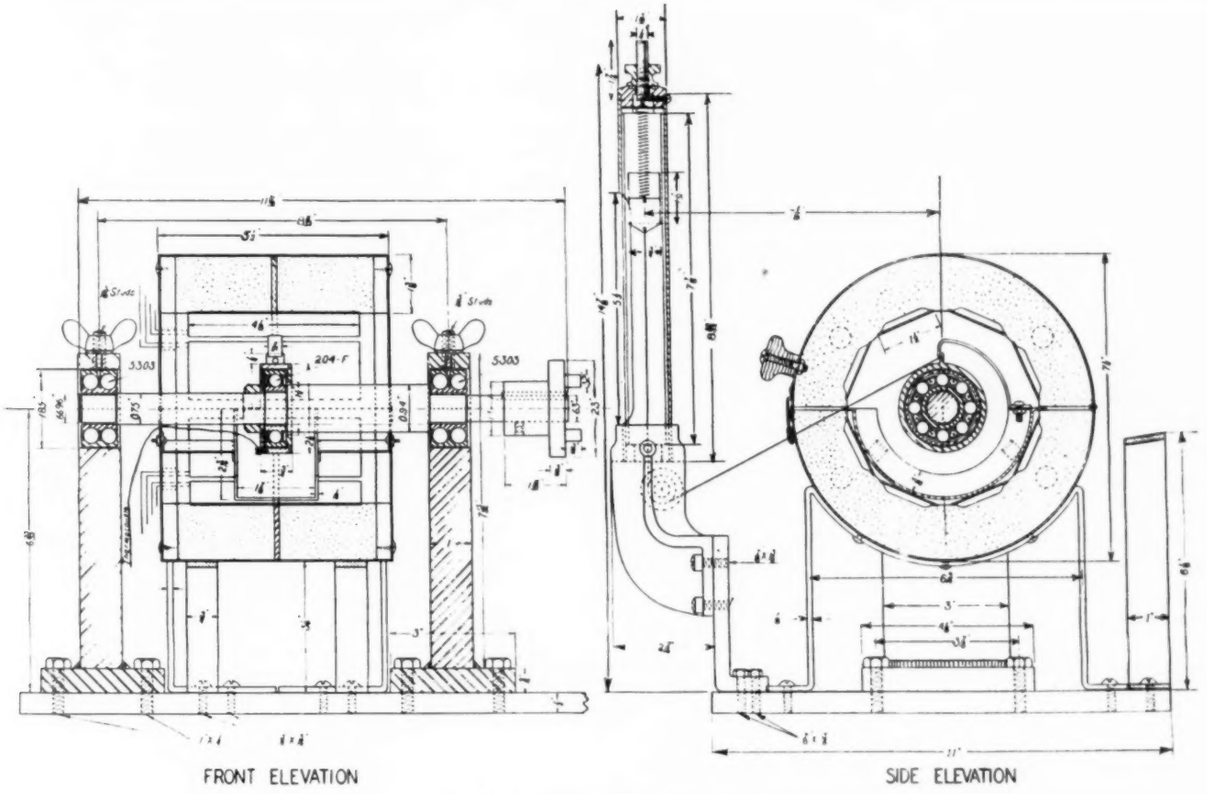


FIG. 1.—Navy Grease Machine, 1938.

the torque-time curve obtained in 1 hr. is characteristic. At the end of the run the gearing is removed, excess grease is wiped off the faces of the race, and the bearing weighed. The difference in weight is called leakage and is calculated to percentage of the original grease charge.

The deterioration of stable lubricants under high-temperature conditions is not rapid enough to be measured by tests under simulated service conditions in the Navy Grease Machine. In order to accelerate the rate of oxidation and deterioration, a high-temperature beater was devised. This apparatus, as illustrated in Fig. 3, consists of a single-row ball bearing, 2¾ in. in outside diameter, with the inner race clamped by a wing nut to the lower end of the vertical shaft of a 3600-rpm. motor. A counterbalanced cup with electrical heaters in its jacket can be raised onto the bearing so that vertical ribs in the interior of the cup hold the outer race and prevent its rotation.

The standard high-temperature stability test consists of placing ½ lb. of grease in the cup, heating to 400° F., and then beating with the rotating bearing for 7 hr. At the end of the test the residue, or grease, if it is still recognizable, can be used to fill a test bearing and repetition of the Navy Grease Machine tests gives an indication of the extent of damage to the original properties of the lubricant. The slight increase in torque after beating indicated in Fig. 4, illustrates a grease satisfactory for high-temperature service.

On the basis of results obtained with the above apparatus, the Engineering Experiment Station has prepared a specification for high-temperature lubricants[3] which has been used for purchases of high-quality greases for almost 2 years. The results have been entirely satisfactory.

### Low-Temperature Grease

The second application of performance testing to specification of greases was to the problem of aircraft-control lubricants. Bearings in aileron and rudder hinges and in

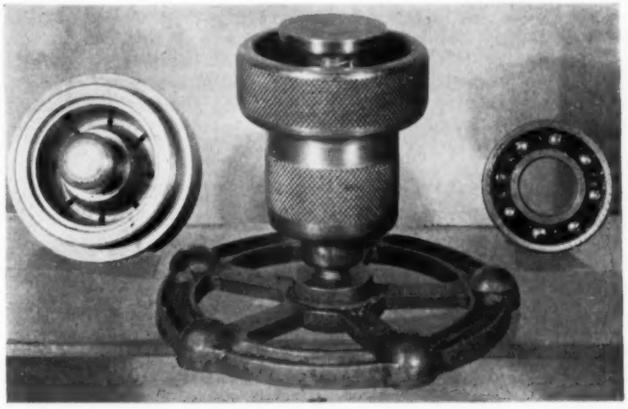

Fig. 2. Navy bearing packer

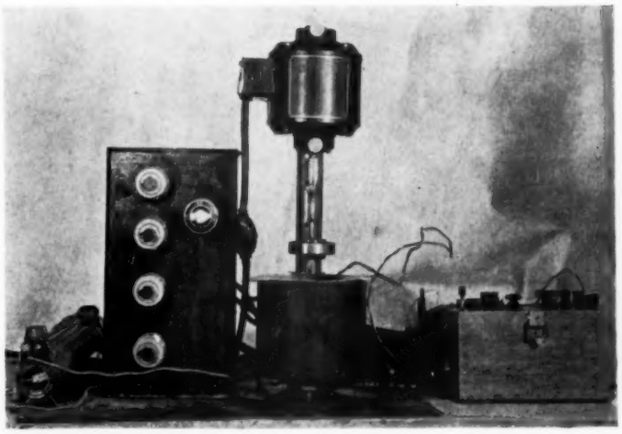

Fig. 3. High-temperature beater

[3] Navy Department Aeronautical Specification M-372, dated September 1, 1939; copies obtainable from Bureau of Aeronautics, Navy Dept., Washington, D. C.

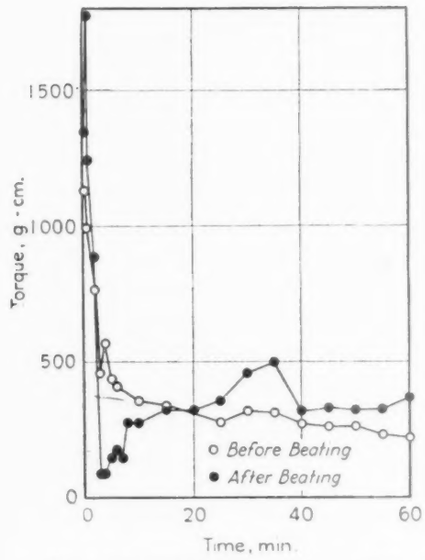


FIG. 4.—Torque Measurement on Grease Before and After High-Temperature Beating.

pulleys in control cable trains are exposed to ambient temperatures. This means that bearing and lubricant temperatures may vary from that of metal in tropical sunlight, about 165° F., to the temperature of the sub stratosphere of −60 to −65° F. No one can predict suitablility throughout such a range from composition and penetration at 77° F. Performance tests are required.

The original apparatus for low-temperature mobility testing is illustrated in Fig. 5. It consists of a vertical spindle of hard rubber with the inner race of the test bearing clamped to the lower end and a pulley on the upper end. The outer race of the test bearing is held between the two parts of a liquid-tight sleeve so that sleeve and bearing can be placed in a bath of alcohol and dry ice without wetting the lubricant in the test

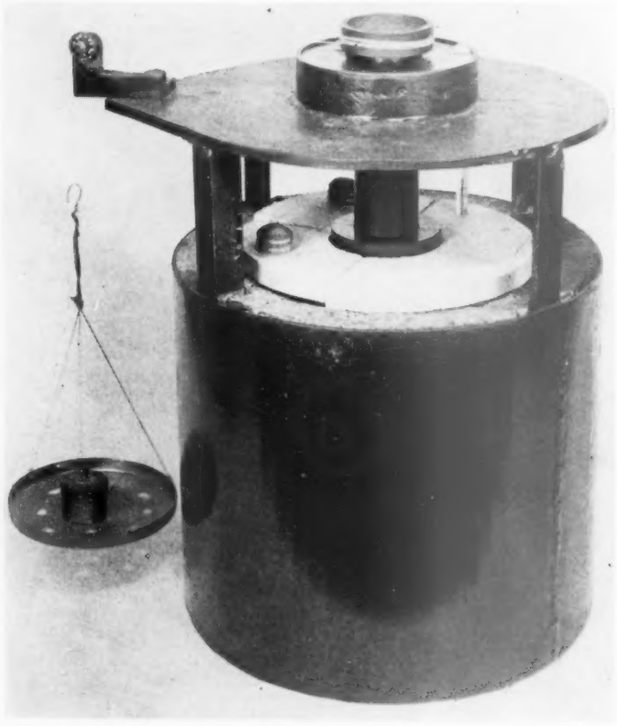

Fig. 5. Cold-test apparatus

bearing. The spindle has an axial hole for a thermometer whose bulb lies at the center of the test bearing. After the accurately lubricated test bearing has been assembled in the apparatus and cooled to the test temperature (—40 or —50 F.) a predetermined torque is applied through the pulley and the time required for the initial revolution is determined. Temperature is the most critical of the several factors affecting consistency and reproducibility of results. The relationship between plasticity of the grease and temperature is similar to the viscosity-temperature curve for lubricating oil. As shown in Fig. 6, the logarithm of the time of rotation *versus* the temperature gives a straight line.

In order to obtain more accurate temperature control and at the same time to increase the number of determinations per man-day a five-spindle, air-bath apparatus has been built. This is shown in Fig. 7. A rectangular, jacketed, steel trough supports the five spindles. A small pump circulates alcohol from a coil in the cold bath at the bottom through a continuous coil of finned tubing in the jacket, while a centrifugal blower at one end of the trough maintains circulation of air through the jacket and back over the spindles and test bearings. Temperature is controlled by a pyrometer in the pump-motor circuit actuated by a thermocouple in the air stream in the trough. The temperature difference from end to end of the trough does not exceed 2 F. after

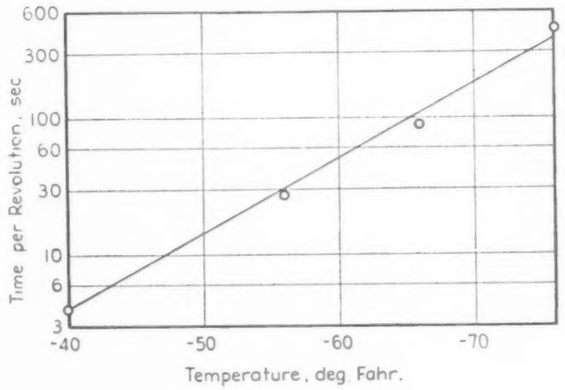


FIG. 6.—Effect of Temperature on Time for Rotation.

equilibrium has been attained so that the temperature on any spindle is within 1 F. of the control temperature.

In addition to plasticity at low temperature, a suitable lubricant must be stable at the highest temperature to which it will be exposed. There are two ways in which a grease may fail when heated; it may change from a plastic structure to a fluid and run out of the bearing (leakage), or it may separate into a stiffer plastic by losing some of the oil (bleeding). To test for leakage, the bearing which has been used for the cold test is run in the Navy Grease Machine 1938 for 1 hr. at 150 F. and 600 rpm. Not more than 5 per cent of the original charge should leak from the bearing during this test. For separation or bleeding tests, 10 g. of grease are weighed into a perforated nickel filter cone which is exposed in a tared 100-ml. beaker and placed in a drying oven, kept at 150 f. During 50 hr. no oil or molten grease should drip into the beaker. The quantity of such leakage is determined by weighing the beaker with its separated product.

### Dirt in Grease

The application of grease lubrication to high-speed precision bearings having minimum clearances makes necessary control of the non lubricant inclusions in grease. Such things as sand, uncombined lime, metal particles, hair, and vegetable fibers are present in all greases. In most applications this dirt causes no trouble; at least

no casualties have been attributed to it. It seems reasonable, however, that serious damage might be done to a ball bearing if a particle of sand having a diameter twice the clearance between balls and races were thrown into the ball track when the bearing was rotating at high speed. In order to establish standards of cleanliness a quantitative measure of the dirt in grease must be possible.

The apparatus used for such measurements is illustrated in Fig. 8. It consists of a binocular microscope fitted with a micrometer scale in one eyepiece and a mechanical stage. The sample of grease is placed in a U-shaped template 0.006 in. thick on a clean slide and exposed to a 29 to 30 in. vacuum for 10 min. after which a cover glass is placed over the sample. Exposure to vacuum removes entrained air bubbles and clarifies the sample for examination. Magnification of 60 diameters has been found most usable. The sample is illuminated simultaneously from below and transversely. The slide bearing the sample is placed on the stage of the microscope so that the base and sides of the template are parallel to the two motions of the mechanical stage and the eyepiece scale is turned until parallel with the sides of the template and with one end in a corner of the sample. The sample is then racked across the field of view while the observer counts the particles as they pass the eyepiece scale. The individual particles can be measured and their sizes recorded as they are counted.

The results of examination of two greases are illustrated in the curves of Fig. 9. Each ordinate of these curves represents the concentration of particles of the indicated size or larger which were present in the sample. Particles smaller than 0.0005 in. in diameter were counted at a magnification of 113 diameters. Both greases were quality products of their respective manufacturers and the cleaner of the two is among the cleanest which has been examined. The absence of particles larger than 0.005 in. in diameter should be secured by adequate screening of the finished grease but low concentrations of foreign material smaller than one or two thousandths of an inch probably can be obtained only by care in the selection of raw materials and cleanliness of equipment during manufacture. A tentative limit of foreign matter in commercially obtainable greases is indicated by the broken line in Fig. 9: namely,

| Minimum Diameter in. | Particles per Cubic Centimeter Above Minimum Diameter |
|---|---|
| 0.001 | 12,000 |
| 0.003 | 2,000 |
| 0.005 | 0 |

## Advantages of Petroleum Specifications

The use of performance specifications, obtained by coordination of results from special test equipment, has resulted in the purchase of definitely superior lubricants. Previously such materials were obtainable only by proprietary purchase. In the light of these test procedures the requisite properties for a satisfactory lubricant for a specific troublesome application can be visualized and tentative requirements can be outlined, the available lubricants can be tested and their efficiency observed. Cooperation between the testing station and the manufacturer often serves to remedy deficiencies with the result that the manufacturer has a premium product to market and the purchaser can obtain a lubricant which gives satisfactory service with a net reduction in the maintenance cost.

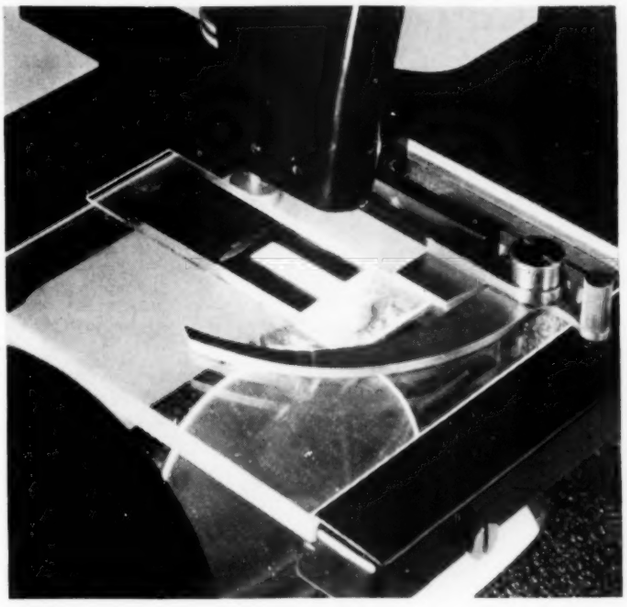

Fig. 8. Dirt-count apparatus

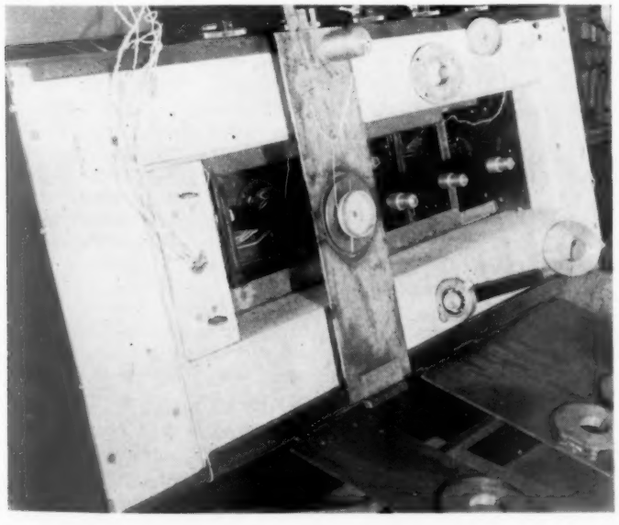

Fig. 7. Five-spindle cold-test apparatus

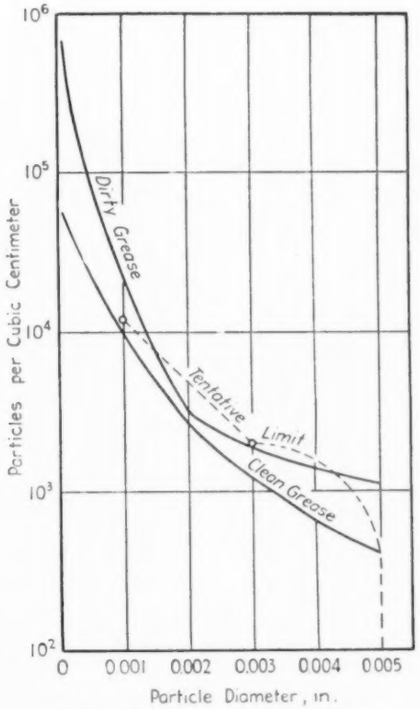


FIG. 9.—Dirt in Representative Greases.

# The Cathodic Method of Controlling Corrosion in Open-Tank Condensers

By N. G. MILLER*

*The cathodic method of combatting corrosion in refinery condensers is considered to offer practical possibilities, in view of the beneficial results achieved by oil companies in protecting pipelines by this means.*

*Four installations in open-tank condensers are described and, while available data is meager, it indicates positive benefits in all cases.*

*A description of the underlying principles in cathodic protection from corrosion, apparatus required and economics involved are included. Except for a brief reproduction, this paper is presented in full as given at the Refinery Corrosion Symposium May 21 at Tulsa, during the Mid-year meeting of the American Petroleum Institute.*

WE SHOULD like to review the present status of cathodic protection of open-tank condensers by citing the service record of the installations of which we have records, as follows:

1. The Naph-Sol Refining Co. at Muskegon, Mich., has had an installation in service in its 6,000-sq-ft distillate condenser box since late 1938. Prior to that date corrosion of the coils had been severe, necessitating replacement of the entire coils twice, at intervals of approximately eight to nine months, although during this period a set of zinc plates provided a galvanic-cell protection which was of only small benefit. The cathodic-protection system installed in 1938 involved the use of a small motor generator delivering about 10 amperes. The present set of coils in the tank was installed about three months prior to the placing in operation of the motor generator, and these coils are still in good condition after almost 2½ years of service.

Two additional coils, however, were installed several months ago at either end of the box, and these have corroded. Therefore, within the past few weeks, the anodes have been replaced by others of larger area and better distribution, and the intention is to purchase a rectifier of larger current capacity than the present motor generator.

*Universal Oil Products Co., Chicago.

Fig. 1—Typical copper-oxide rectifier in weatherproof housing

2. The Richfield Oil Corp. at Wilmington, Calif., has had several installations operating successfully for about two years on its new 50,000-bbl. plant. Walton C. Poole, of the Sinclair Refining Co., at East Chicago, has furnished us with the following data regarding these installations.

Corrosion developed very rapidly when this plant was started up, and leaks developed within three months. Cathodic-protection equipment then was installed on all the condenser and cooler boxes of this plant, and no further trouble from corrosion has been encountered.

The benefits of cathodic protection have been confirmed here through the installation of test samples. The test samples consist of small plates of the same material as the condenser tubes. They are located in the condenser in pairs, one of each pair being connected solidly to the tube so as to receive the benefit of the protection, and the other being insulated from the tube so as to be without protection. Considerably less corrosion has occurred on the protected samples than on the insulated samples.

It was observed further that, as a result of the cathodic protection, the precipitate deposited from the water onto the condenser tubes was of a soft nature, and could be hosed off when the plant was shut down and the tank drained; whereas, without protection, the deposit was in the form of a hard scale. This feature was well demonstrated on one occasion when one of these units was taken out of service because of a short circuit which developed in it, and the plant run was completed without this unit in operation: When the plant next was brought down for cleaning, this box was found to be badly scaled up.

It was found also that cathodic protection appeared to result in better heat transmission through elimination of hard-scale formation on the condenser tubes.

3. The Sinclair Refining Co. at East Chicago has installed an experimental unit constructed similar to those in successful operation at the Richfield plant. The total area of cathodes in this condenser, i. e., the tank and coils combined, is approximately 25,000 sq ft. The source of current is a General Electric rectifier rated at 10.5 volts, 78 amperes (see Fig. 1). The rectifier is mounted directly on the side of the condenser.

This unit has been in operation only since early March, not long enough to furnish any performance data.

4. The Kendall Refining Co. at Bradford, Pa., has installed a set of anodes in its distillate condenser box, of which the total area of submerged surface is approximately 8,600 sq. ft. See Fig. 2 & 3 (Fig. 3 omitted). At the time of this writing its rectifier was on order but not delivered and, therefore, no operating data are yet available from this unit.

We should like to quote from a letter which we received about a year ago from Kendall setting forth the reasons which prompted them to make this installation:

"We figure that our condenser-coil cost, for 1931 up to 1939, was approximately $10,500, representing the cost of the original coils and the replacement of the top section on two different occasions. Then in 1939 a complete replacement was made, the cost of which was approximately $7,200. You can see from this that any protection which will decrease this cost, which is around $1,000 per year, would be most desirable."

The foregoing installations when totaled do not constitute a large record. The interesting feature, however, is that all of these records indicate positive beneficial results. Also, the installations were made in each case by individuals acting independently, and without previous experience in such work.

## Theory

The theory of cathodic protection probably is understood generally, but the author would like to review it

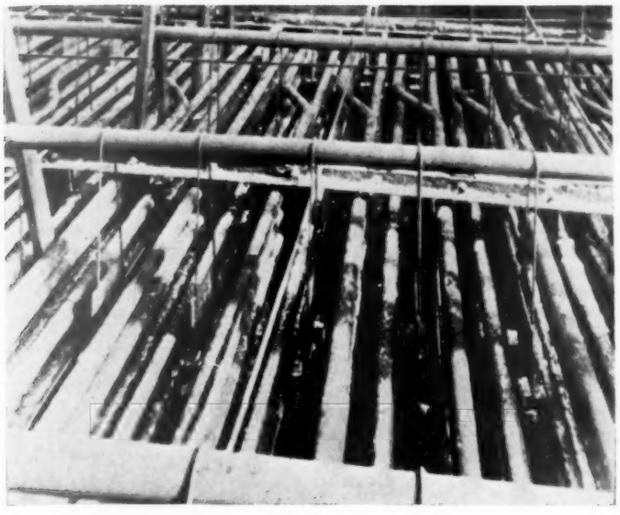

Fig. 2—Installation of anodes in distillate condenser box at Kendall Refining Co. plant at Bradford, Pa.

briefly as he believes that doing so will clarify subsequent discussions.

All corrosion of metals in contact with water or moist earth takes place by just one means—electrolytic action. This action may take place through: 1, dissimilarity of two metals in electrical contact in an electrolyte; 2, two metals in different electrolytes; 3, like metals in two concentrations of the same electrolyte; and, 4, the same metal in different electrolytes. We are concerned primarily, insofar as this discussion is concerned, with the first of these—in which case the dissimilarity in the metal may be caused by impurities; mill scale; or differences in composition, stress, or temperature.

This action results from the fact that any metal when submerged in an electrolyte assumes a negative potential with respect to the electrolyte. The potential is called "solution" potential, and each kind of metal has a definite and constant solution potential. If two metals with different solution potentials are placed in contact with an electrolyte and also are connected through a metallic circuit, we have an electric battery cell, and current will flow impelled by a voltage equal to the difference between the solution potentials of the two metals. This current flow moves through the electrolyte from the metal with the greater solution pressure, which is the anode, to the metal with the lesser solution pressure, which is the cathode. This current flow is the movement of acid ions through the electrolyte to the anode—which ions consume the anode at a definite rate—and movement of hydrogen ions to the cathode—where the hydrogen precipitates out of the electrolyte.

The result of this hydrogen in quiet water is to provide an insulating film around the cathode, tending to prevent the further flow of current and the further corrosion of the anode. This condition is called polarization. Any factor which tends to depolarize the cathode, however, thereby will restore the current and corrosion of the anode. Such factors may be the presence of dissolved oxygen which combines chemically with the hydrogen and removes it, or turbulence which washes the hydrogen away, increased temperature which generally accelerates chemical activity, or increased concentration of acids, alkalies, or other impurities in the electrolyte which increases conductivity of the electrolyte and, hence, the current flow.

Regardless of which of the above factors is predominant, corrosion actually takes place when current flows from the metal into the electrolyte and the metal is anodic. When this current flows back into the metal, the reverse action takes place, and metallic or hydrogen ions in solution tend to precipitate out upon the metal, which at this point is cathodic.

The purpose of cathodic protection is to provide an artificial current which overcomes the small circulating current, reducing or extinguishing the anodic areas and rendering most or all of the metallic areas cathodic (see Fig. 4). This can be done by providing artificial anodes consisting of a metal whose solution potential is greater than that of the metal to be protected, such as zinc against iron. The other method is to introduce an external source of direct current between anodes of any metals and the structure to be protected by rendering the structure (in this instance the condenser coils) cathodic. The latter method is the one most generally employed now because of the larger current made available thereby.

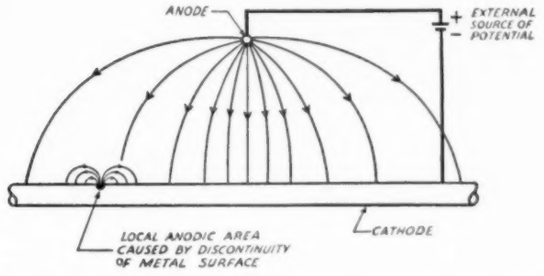


Fig. 4—Diagram of action of galvanic currents and distribution of protective currents

## Apparatus Required

The installation consists of two items: the anodes and the source of direct current.

The anodes generally consist of a set of steel plates submerged vertically in the condenser tanks from the surface down to close to the bottom, and they are spaced to give a reasonably good current distribution throughout the box. In locations wherein it is difficult to renew steel plates, it might be more economical to use carbon plates or carbon rods. The National Carbon Co. has developed a means of sealing the connections to these carbon anodes for cathodic work, which method prevents the lead wires from decomposing. The coils are hung from cables or rods fastened in turn to a horizontal structural beam or pipe which, in turn, is suspended from an insulating support. Positive and negative electrical buses are run around the outside of the tank, the positive bus being connected at various points to the horizontal beam or pipe supporting the anodes, and the negative bus being soldered at various points to the tank with taps to the inlet and outlet headers of the coils in the tanks. All electrical connections are soldered solidly or welded.

The source of direct current may be either a motor generator or a rectifier of the copper-oxide, selenium, or tube type. The rectifier has the advantage over a motor generator set in that it is non-sparking in operation and, therefore, is more suitable for operation within the refinery process area. Rectifiers of both the copper-oxide and selenium cell type have been developed for outdoor use in connection with pipe lines; have been developed with weatherproof housing; and are generally of rugged construction for operation without attention for long periods in remote locations. The copper-oxide type has been used more generally. The copper-oxide type is offered by both the General Electric and Westinghouse Cos., and the selenium type by Electrical Facilities, Inc. All types are provided complete with main breakers, voltmeters, ammeters, and tap changing devices for adjustment of voltage and current. They are provided also with a fan to provide increased capacity and a wind relay located in front of the fan, which shuts the unit down should the fan fail.

## Points of Design

Successful operation of cathodic-protection units appears to be largely dependent upon the proper spacing of anodes so as to provide uniform current over the entire area of the condenser, which, in turn, will prevent areas remote from the anodes from being underprotected

and areas close to the anodes from receiving wasteful amounts of current.

The current requirements are approximately 5 to 10 amperes per 1,000 sq. ft., this value depending in large part upon the degree of uniformity of current distribution. The current requirements are, in the last analysis, whatever is necessary to produce a certain minimum potential of cathodes relative to electrolyte at all points, and we shall go into this point a little further in a subsequent paragraph.

The anodes, in addition to being located properly, should be provided in sufficient quantity to maintain a low circuit resistance in order to save power. Furthermore, the anodes will be consumed at the rate of approximately 20 lb. per ampere per year; and enough metal, therefore, should be provided so that the anodes will last a reasonable length of time.

The rectifier should be mounted as close as practical to the condenser in order to minimize line losses. A typical condenser requires about 6½ volts for a current of 100 amperes. It was found that, unless the rectifier were placed within 100 ft. or less of the condenser, or the copper wires made very heavy, the losses in the lines between the rectifier and the condenser would equal the losses in the condenser itself.

### Measurement of Cathodic Potentials

As indicated previously, the true criterion of protection appears to be the existence of a definite minimum potential of cathodes with respect to electrolyte at all points. The value of this cathodic potential depends on the method used for measurement. There is considerable room for development in the methods of making these measurements. However, we should like to present a method of measurement which has been used by the Sinclair Co., which method was passed along to us through the kindness of Mr. Poole of that company.

The principle of this method of measurement is to compare the potential between a test electrode, consisting of a short length of ½-in. pipe submerged a foot or so below the surface of the water, with the cathode—which, of course, consists of the coils and tank. Instead of measuring this potential directly, however, a calomel cell is used, which in itself is nonpolarizing (see Fig. 5). Readings are taken between the calomel cell and the test electrode, and also between the calomel cell and the cathode. The difference between the two readings, therefore, represents the difference between the potential of the test electrode and the potential of the cathode. To reduce the effects of polarization further a null-type potentiometer is used.

The potentiometer should read up to approximately 1.10 volts. A Leeds and Northrup potentiometer (catalogue No. 7655) is suitable for this purpose. A Leeds and Northrup calomel cell also may be used, but the one developed by Sinclair appears to be much more satisfactory for field use; it is made as follows: A glass tube having an inside diameter of ¼ in. to ½ in. and a length of 6 in. to 8 in., open at one end and closed at the other, is provided with a platinum wire sealed into the closed end. A rubber-covered lead wire is soldered onto this platinum wire, and the connection covered with waterproof insulation. A few drops of mercury then are introduced to cover the end of the platinum wire. An electrolyte is prepared by dissolving 40 grams of potassium chloride in 100 ml of hot water and then adding, with continued stirring, a few grains of mercurous chloride and, lastly, 3 grams of a good grade of chemical agar. This mixture then is poured into the tube and allowed to jell. A plug of paraffin then is placed in the open end of the tube to keep the jelly from drying out, this plug being removed or perforated when the calomel cell is to be used. In making the tests with the above equipment, both calomel cell and test electrode are submerged a few inches below the surface of the water, and both are located remote from each other, and remote from both anodes and cathodes.

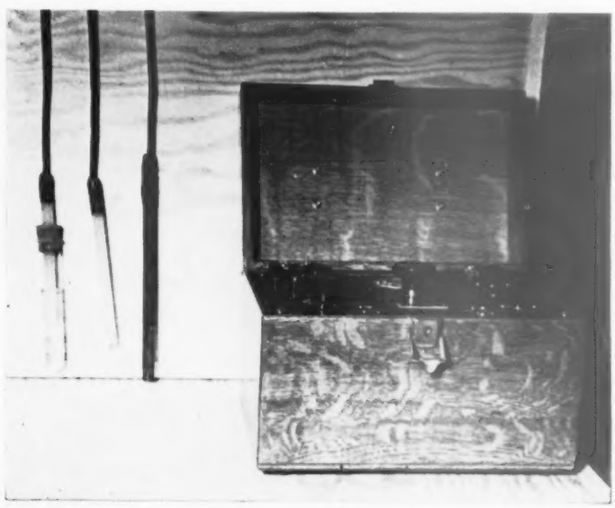

Fig. 5—Portable potentiometer, calomel cell and test electrode for measuring cathodic potentials

In accordance with the foregoing method, proper protection is secured when the potential of the cathode is a minimum of 250 millivolts negative with respect to the test electrode.

Another method of measuring electrolytic potentials which appears to have some advantages is to make use of the exploring electrode developed by G. I. Rhodes, vice president and chief engineer of Ford, Bacon, and Davis, Inc., for use in surveys for cathodic protection of pipe lines. This consists of a button of definite area, made of the same steel as the cathode. This button is provided with an insulating tip ¼ in. long with a $\frac{3}{8}$-in. drill-rod handle about 4 ft. 0 in. long insulated with bakelite tubing. This is operated by pressing the insulated tip against the cathode at various points, and measuring the potential between the button and the cathode by means of a null-type potentiometer.

The advantage of this method is that it can be used to explore various portions of the condenser and to locate points where protection is at a minimum.

A few simple experiments in our laboratories, using both the calomel cell and the exploring electrode, indicated a large disparity between the currents picked up by cathode at points close to, and remote from, the anodes —which was brought out by the exploring electrode, but not by the calomel cell and test electrode.

We should like to see more work along this line to correlate readings obtained by the calomel cell and test electrode with those obtained by the exploring electrode. Ford, Bacon, and Davis have stated that a negative potential of 250 millivolts of cathode with respect to exploring electrodes in pipe-line service is a figure which represents good protection, and we should like also to determine if this figure is equally applicable to submerged coils in open-tank condensers.


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